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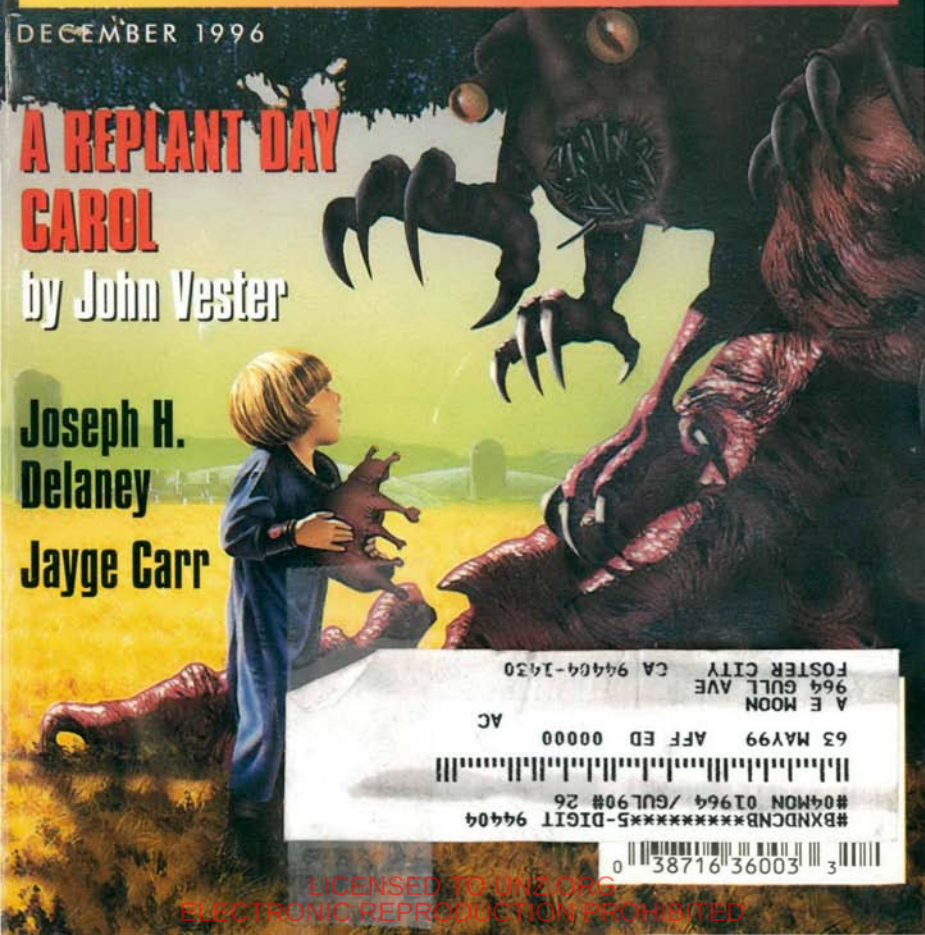

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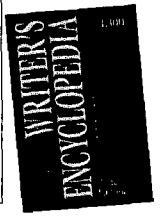

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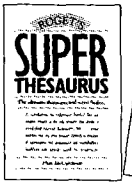

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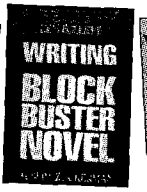

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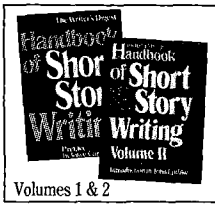

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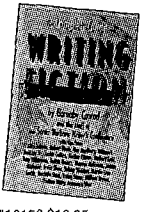

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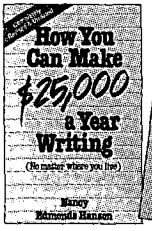

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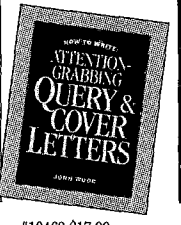

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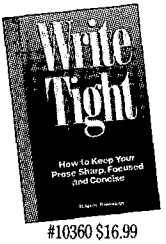

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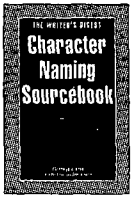

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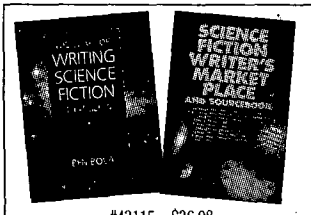

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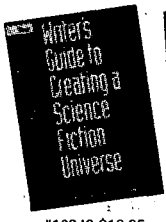

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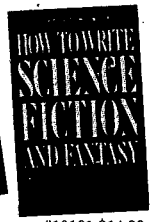

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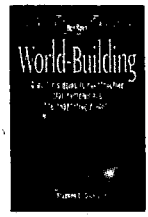

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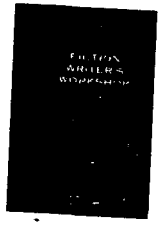
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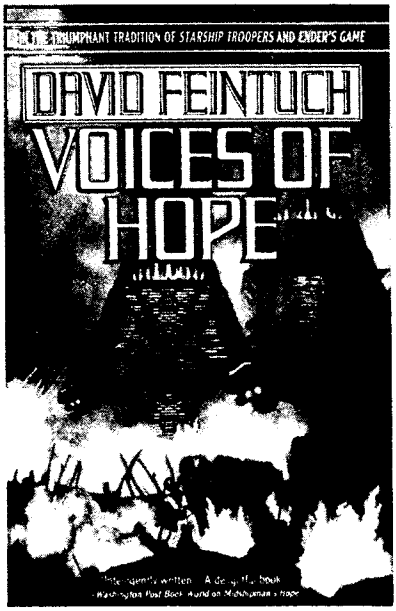

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EDITORIAL Stanley Schmidt

THE NEW EVANGELISTS

This is *not* about religion.

I mention that right at the start because I know from repeated experience that if I start a discussion with an example of a general trend or principle, some readers will instantly latch onto the specific example and mistake that for my primary subject, completely missing the larger point that I set out to make. The danger of that happening seems especially strong when my *title* contains a word most commonly associated with religion.

So I repeat: this is not about religion. Please be careful not to read it as if it were.

It is—not surprisingly, since religion is such an emotionally charged area—a type of confusion I've had to deal with before. *Analog* has sometimes published stories in which the "villains" were devoutly religious people attempting to impose beliefs or philosophies on people outside their group—requiring the teaching of "Creation Science," for example, or legislating personal conduct on the basis of a particular religion's teachings. Every time this happened, quite predictably, the mail has brought a significant number of letters condemning us as "anti-religious" or "anti-Christian." (And it will again, just as predictably, shortly after this sees print—despite my opening admonition!)

Neither charge is true. The writers of the letters have consistently failed to make a subtle but crucial distinction. I can't recall any case in which the writers of such stories, or I in any of my editorials, have attacked or denigrated Christianity or any other religion, or the right of anyone to accept any set of beliefs they might choose. What we *have* criticized and warned against is the tendency of some groups to go *beyond* believing and practicing their faith, to trying to make others who might not share that faith live as if they did.

Yes, it's true that in recent years a fair number of the characters depicted as doing that have been Christians—or, more accurately, a few specific *subsets* of Christians. There's a very simple reason for that. Many of the most conspicuous recent examples of such behavior in the part of the real world that most of our readers and writers live in happen to have involved a few subsets of Christians. (A great many Christians do *not* try so hard to pressure others into living Their Way, and some sects of other religions have also done so—but in

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times and places less likely to force themselves on our writers' attention.)

What many of us have objected to is *not* Christianity, or any branch of Christianity, or religion at large. Our quarrel is not with religion, or any particular religion, but with the widespread human tendency to try to make others live according to the precepts of one's own beliefs—whatever they may be.

In a word, our quarrel is not with some people's religions, but with their *evangelism*—and that may not have anything to do with religion at all.

Yes, I know that *originally* evangelism referred specifically to "Zealous preaching and dissemination of the gospel, as through missionary work" (*American Heritage Dictionary*). But I also know that its meaning has long since been extended in common usage to mean, in the same dictionary's words, "Militant zeal for a cause"—without specifying what *kind* of cause. Or, in the more detailed words of *Webster's Third New International Dictionary,* "Missionary, militant, or crusading zeal for or earnest advocacy of any cause."

The simple fact is that militant or crusading zeal can be downright annoying—or far worse—no matter what kind of cause is being promoted. It *may* be a religion—or it may be some completely different type of philosophy or meme. It might be Democracy, or Communism, or the belief that "We Must Go to the Stars" or "Everyone Needs to Be on the Internet."

If you're reading this magazine, the chances are pretty good that you share one or both of those last beliefs to at least some extent. You may, in fact, be so convinced of their truth and importance, and so enthusiastic about sharing your enlightenment, that you put a good deal of effort into showing others what you have learned and trying to get them to share your enthusiasm.

You may, in other words, be an evangelist.

And you may find it shocking to hear yourself described in such terms. "Me?" you may say. "I'm not one of *those*. It's just that I've discovered a Good Thing, and I want to share it with as many people as possible. . . ."

Well, most evangelists feel the same way, regardless of which cause they're promoting. They want to share what they see as an important key to a better life or future. They

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want to protect others from harmful influences, be they ignorance or Satanic Influence.

What all of them risk losing sight of is that others may see things differently and no less sincerely or fervently, and that their own view just might *not* be the Last Word in Truth. This is *not* to say that all opinions are equally valid, or that anybody's "truth" is as good as anybody else's. Despite a rather bizarre fad currently afflicting academia, maintaining that science is just a "cultural construct" and has little if anything to do with "objective reality," the Universe *does* behave in certain ways and not others. It's perfectly possible to hold beliefs that are good reflections of that reality and help a person function within it, or to hold others that reflect it poorly and may lead to serious mistakes.

But the Universe is a big, complicated place, and it's seldom easy to reach a general human consensus about The Answers. Beyond a certain point, everyone is entitled to make his or her own decisions about what to believe—*and live with the consequences*—without being constantly pestered or persecuted by others who feel sure they Know Better.

Sometimes, of course, it is necessary to adopt and act on a limited consensus. If you're putting together a public school curriculum that attempts to give students a reasonably coherent, self-consistent picture of the world in which they live, you *can't* teach every set of beliefs that's ever been promulgated as equally valid. The most literal forms of Biblical Creationism, for example, really are incompatible with evolutionary theory; and most people who understand logic and have looked carefully at the evidence find the latter a far more likely description of how our world

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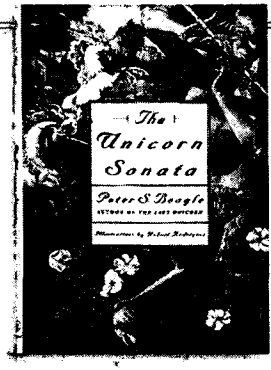

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has actually developed. So most public schools have—rightly, I think—chosen to teach evolution.

I can understand that firm believers in "creation science" may feel that *they* are being unduly evangelized by "evilutionists," and to a certain extent I can sympathize with their displeasure at that. However, they are not being told that they can't believe what they want, or even teach it—if they want to set up their own schools *for those who want to use them*. However, if their beliefs turn out to lead to a flawed understanding of how the world works, they must accept the consequences. Meanwhile, the rest of us need to do the best we can at training citizens who understand their world as well as possible, and at the moment evolution seems to most of us the more likely choice to do that. (Please note carefully, though, that while "most of us" is the empowering phrase here, it does *not* guarantee *rightness*. Majorities *can* be wrong; some have been at times and places in the past, quite likely will be again in the future, and almost certainly are in the present.)

It is only natural that people who think they have discovered an important part of what it takes to live well should want to share it. It's even natural that they should want to convert others to their way of thinking. Doing so may even seem to be an urgent need. Given the historical evidence that meteors *have* caused massive extinctions on Earth in the past, and the astronomical evidence that they could do it again at any time, some people may feel that they *must* do anything they can to get a program in place to detect and protect ourselves against potential threats. They may well be right. But just how much are they justified in doing?

It seems to me that anyone who thinks he has a piece of the Truth that Everybody Else Needs is entitled to, and may even have a duty to, try to put it out where everybody can see it and to try to call their attention to it. But the range of means to do that is very, very wide.

You might publish your ideas in places where many people have the opportunity, but not the obligation, to read or listen to them—such as an article or story in this magazine, a letter to the editor of your local newspaper, or a phone call to a radio talk show. You might offer to do assembly programs in schools, or stick fliers under windshield wipers in parking lots.

None of those methods, of course, guarantees that anyone will pay any attention to you. So you might want to do something a little more emphatic, like wearing an albatross around your neck and collaring people at cocktail parties. Or going through the phone book and calling people at home, or walking along streets knocking on all the doors, to deliver your spiel personally. Or driving a sound truck up and down residential streets, blaring out your message in a way that can't be ignored.

And then there are the real extremists: the types who send mail bombs to attract attention to their cause, or send armies to force whole populations to listen and convert—or else.

Probably few of us these days have

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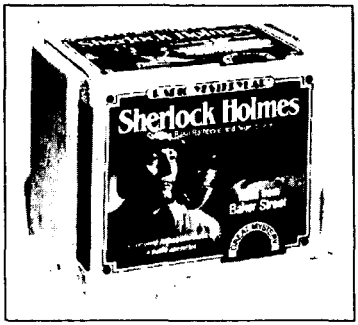

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much sympathy for that last type, and I personally have little use for the second, though I staunchly support the first. The right to speak your mind does not include the right to insist that anyone listen to you.

The right to try to make them *want* to, though, is exceedingly important to the continued development of civilization. Many of us think we know things that the rest of the world urgently needs to know. Some of us are right—but we're not sure which ones. That's why *Analog* has always been a forum for just about any point of view that anybody could make a reasonably convincing case for, occasionally even presenting for consideration ideas that the authors themselves don't fully endorse.

The problem with evangelists, too often, is that they're so *sure* they have What Everybody Needs that they become intolerant of other opinions, ridiculing those who disagree with them and making real pests of themselves in their quest for attention and agreement. It's easy to recognize that in other people who are trying to evangelize *you*. It's harder, but no less important, to recognize when you're doing it to *them*.

Analog, for example, has a long record of trying to show how science and technology have made our lives better, and can and should continue to do so. It's a subtle but treacherous step from that to telling anybody who *doesn't* share your level of enthusiasm, "If you don't agree with me about how good for you all this is, your opinion isn't worth considering." A couple of readers, responding to a recent editorial, in effect did just that—and probably never even suspected that their attitude might make those they would like to convert *less* likely to share their enthusiasm.

So it's a good idea for everyone with an axe to grind to remind himself that other folks have axes to grind, too. And no matter how wonderful *your* axe is, if you become too pushy in your efforts to sell it, you may be just as irritating to others as some of them are to you.

Which just may, in the long run, be counterproductive for your cause. ■

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Look over all your copies of *Analog* dated 1996, or refer to the annual Index which will appear in our January 1997 issue. Pick your *three* favorites in each of the following categories: novella, novelette, short story, science fact article, and cover. If you're not sure about a piece's category, you'll find it listed in the Table of Contents for the issue in which it appeared, as well as in the Index. List your choices in order of preference (your favorite in each category is #1) on the ballot below, and either mail it in or send it e-mail. The ballot is intended to make it easier for you to vote, but if you don't want to cut it out, feel free to copy it.

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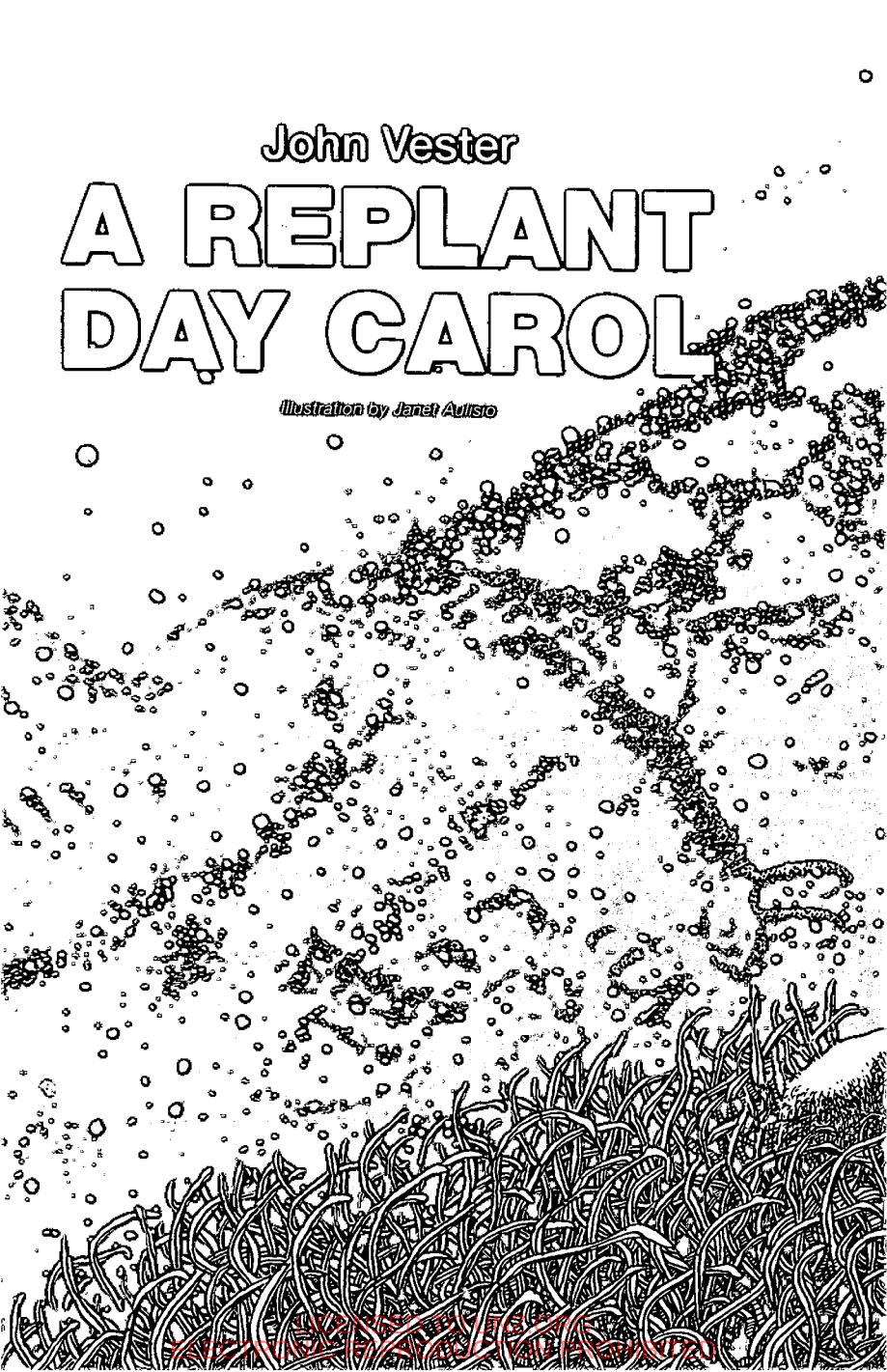
John Vester

A REPLANT DAY CAROL

Illustration by Janet Aulisio



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The lorry-load of monsters shocked Andrea Forman out of her memories. Jonathan, in the back seat, shouted excitedly. "Reptants! Look at 'em all!"

"Settle down, Jon. You'll wake your sister."

"OK. But when is Replant Day, Mom? Can I kill one this year?"

"We'll see, honey. Listen to your music. It's going to be a long drive."

Following her son's eyes, Andrea saw hundreds of writhing, demonic reptilian/arachnoid nightmares, each in its own small cage, cages stacked layer on layer, row on row. On Earth, such a cargo might sport a contrail of feathers, or pine needles. Here—nothing. Just baleful looks from each pair of evil eyes.

Eyes that still seemed to her more innocent than they should. Andrea's thoughts drifted back to her first year on Phoenix. A lifetime ago, it felt.

She smiled as she remembered her first impressions of Bill. *Just another horny backwoodsman,* she'd thought. But he'd been so sincere and dedicated, so eager to meet an Earther. She'd grown weary of the attentions of the many strong, silent pioneer types who daily invaded her loneliness. Bill was different with his confident, unrushed approach to life, the light in his eyes, and the smile always ready to dawn on his strong, solid face. He had deeply felt commitments to cultural and social precepts Andrea only vaguely understood. A fifth-generation Phoenixian, there was an incredible depth to his convictions. She had found it compelling.

She recalled the replant ritual, when she had first confronted an infant reptant through the sights of Bill's tranquilizer gun. Regardless of the rite's function in the lives of the natives, this bloody ritual killing had been, for Andrea, a ceremonial admission into the community—a symbolic letting go of Earth. The detestable things she'd had to do to the animal's body afterward had caused the ceremony to degenerate, for Andrea, into empty motions. But her determination to be part of Bill's world, and to provide for their first child, already growing within her, convinced Andrea to grit her teeth and get through it.

She blinked and returned to the present—to the gridwork of goblins still next to the car.

"Either speed up, Bill, or slow down and let it pass," she snapped.

It broke her heart to see Jonathan's smile fade with the lorry-load's tail lights. Replant Day. How she still hated it. This year it would be even worse.

"This time I get to do it. Right, Dad?"

"We'll see, son. Just relax now. Get some sleep."

"David Filpos did it last year, and he was six and a half, like I am—"

"*OK,*" Andrea cut him off. "We'll talk about it later. Replant Day is still a few weeks off. Give it a *rest!*"

Funny, Andrea thought, how you know, *as* you say something, that it's wrong, hurtful, damaging. Like a bad throw that you know is off target, even before it leaves your hand. Jonathan's face—the furtive look toward his father, the glance at Andrea,

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the damping down of the light behind his eyes—only confirmed what she already knew. "Sorry, honey. It's been a long day. Rest now." She cupped his cheek in her hand for a moment. He closed his eyes, with a pouting smile.

When, she wondered, *will the day come when healing would no longer be so easy for him?* Would *she* recognize it? Would she herself, by then, be past hurting in this season of joy?

She stared wordlessly at the oncoming road, eager for the numbness of its hypnotism. But her memories rematerialized, like ghosts, their wicked dance superimposed onto the dwindling day.

How could she have been so wrong about the romance of being a frontier wife? Life on this new world hadn't been the total return to wilderness she'd imagined. It was, instead, an awkward limited edition of terrestrial techno-culture, pinned, like a gaudy brooch, onto this rugged, ragged burlap shirt of a world.

The planet's abundant, vast, pristine wilderness did not beckon to the humans here. They cowered behind their fences to protect themselves *and* the sacred wild-lands around them. While there was safety in the homes and lands carved timidly out of the wilds, danger was always close, and fatal.

Andrea's thoughts escaped to Earth . . . home . . . humane holidays . . . the familiar in nature and in the reassuring roots of a *normal* life. To have given it all up for a day maddening hours too short, a year that was too long, a sky too purple, a night infested with bric-a-brac moons and alien constellations! These she could bear. What had happened to Earth's cultural heritage had been harder to adjust to. "A clean start," they had all said. "No returning to Earth." There was nothing to return to. Earth, in any meaningful sense, had been lost by coming here. Relativistic time dilation effects had swept all she'd left behind into the void of time. Andrea sometimes saw her own past as a child's toy, flushed down a toilet. Gone forever.

So, she'd been told, there was no reason to match and mingle with Earth's religions, ceremonies and observances. To be sure, Earthers continued to bring their beliefs with them. They preserved their particular holidays and rituals within the cultural enclaves that naturally formed. But the position of the consensus culture (the government) was to recognize none of the imported religions or belief systems officially. What they *did* recognize was an odd mix of Jainism and Deep Ecology that had evolved here since the first, almost-failed human beachhead. It was considered best, Andrea had been told, to let customs and annual commemorations grow naturally from Phoenix's *human* history. More relevant, they said. More comforting.

Oh, they were certainly glib, those orientation people. But they overstepped when they talked about "comfort." None of them remembered, as Andrea did, the comforts of home, and hearth, and family at Thanksgiving or Christmas. And now, so many years later, their platitudes seemed especially vapid. None of

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them had lost a child, as Andrea had, to Phoenix's hideous mascot.

Anna had just learned to walk. Andrea was pregnant with Jonathan. The normal house-proofing that is part of parenting on any planet was one thing. The securing of the yard against the escape of a baby into the "wild-lands" had been something else entirely. Andrea and Bill had been thorough, especially since there was a large reptant tree growing not fifty meters from the west edge of their property. As dangerous, people had warned Andrea, as having a swimming pool in your backyard.

Much as Andrea resisted, fragmentary images assailed her of that warm summer afternoon.

Anna outside. A quick trip into the house for some food. A shriek penetrating faintly into the kitchen. A mother's moment of dread, then relief knowing it was not Anna's voice. Bill's violent flight from the house, gun in hand.

Following. Over the fence into the wild-lands. Arriving in time to see Bill shoot a full grown reptant in the tree. Seeing a shapeless bloody mass fall from its fang-like mandibles before the monster succumbed to the fast-acting tranquilizer and fell from the tree.

Feeling her mind close, staring at the familiar red ribbon tied into angel thin blonde hair on a small decapitated head.

Feeling the gun in her hand. Vaguely aware that Bill had given it to her and then running to the tree. Neighbors beginning to appear, holding her and comforting her. Keeping Andrea from running after Bill. Offering the senseless consolation that the reptant can't eat any part of her daughter.

Bill lifting the reptant's body from Anna's remains. Stripping off his shirt and using it as a bag, collecting every piece of her, his hands and arms sticky with blood.

Another savage shriek. All eyes to the reptant. Still unconscious. Suddenly a large shape drops from the tree and knocks Bill to the ground. A second reptant!

Andrea has Bill's gun up to her shoulder in a flash and fires every remaining dart into the reptant. Feeling insanely alert, adrenaline flooding into her. Frustrated at the laws against real bullets, Andrea advances on the attacker and smashes at it wildly with the butt of the rifle. By the distraction as much as by the shots, she saves Bill's life.

But no closure came from that purely instinctive reaction. Anna was lost. The funeral brought no closure either. Anna was gone. Lost needlessly to insane social experimentation. Lost to misguided Deep Ecological community planning. To suicidal laws that professed some ideological solutions to the question of man's place in nature. Rubbish! And it cost *her,* not them.

Cost her in recriminations and blame and guilt. In a retreat from Bill. In endless pleading with the authorities to change the wild-land laws and repeated arguing for the imposition of buffer zones. All for nothing. Her new home had become truly alien and frightening, and she carried within her an emotional black hole, huge and consuming.

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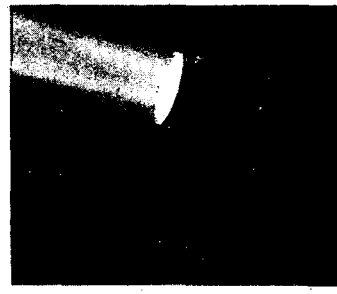

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Five wasted years. Only the birth of Jonathan had preserved her sanity. With the arrival of Cindy four years later, time had begun to heal her wounds.

But some things time could never heal. Andrea felt a tear crawl slowly down her cheek.

In the deepening gloom, Bill switched the car from solar panels to batteries only. Then he found Andrea's clenched left hand. Her fist opened and melted into his right hand. The tear reached her lips and she tasted the salt of it. She was surprised to realize that she didn't even know if the tear had been born of her memories, or of Bill's sweet touch.

She glanced back at Jonathan. She envied the contented look on his face. Andrea knew that, for herself, healing would never again be so easy.

Outside, the setting sun was transforming the trees on the retreating western horizon into flat black silhouettes against a blazing sky. Intricate traceries of twigs and leaves. Sooty doilies on edge, rolling away from the red/orange fires of the departed sun. It was stark beauty, at once totally alien and yet strangely evocative of her long-lost home in California's Central Valley.

City lights winked into existence, background stars against the occasional comet of oncoming headlights. The stationary city lights, arranged in their inevitable rows and ranks, described emerging new patterns of life; new to this planet—new to some of that life form's own members, Andrea thought.

The lights smeared and swam and ran in wavering white streaks all over the darkening land.

Andrea squeezed her eyes shut, flushing more sea water from them.

In a short two weeks, the first of a series of dreaded days arrived. Andrea had promised herself she'd make the best of today's outing. After all, she and Bill had been through this four times before. Best to put on a good show, especially for Cindy's sake. No sense passing her own neuroses onto her daughter's impressionable developing psyche.

Besides, back on Earth, Andrea's family had always observed the tradition of going out on a crisp winter's day to chop down a Christmas tree. And later the family began to use live trees that would be replanted after the holidays.

Not so different from today's mission.

Andrea extracted Cindy from her car seat as Bill opened the back door on the other side and said to Jonathan, "OK, my man, let's see how you do with your first reptant."

"Yeaahhh!!"

No music. Andrea missed the music of the season. Stupid, she knew, to equate Replant Day with Christmas. But it was an obvious parallel, especially with the winter solstice approaching. Why *couldn't* they play some carols? The silence oppressed her as she carried her squirming daughter and followed her husband and excited son into the reptant nursery.

Silence gave way to hideous animal screeches, excited childish whoops

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and the muffled shots of tranquilizer guns.

The nursery was a huge permanent tent with an ancient reptant tree growing inside at one end, complete with a full grown guardian reptant prowling its branches. The other end of the tent was a loading dock and staging area filled with lorry-loads of caged baby reptants and potted reptant saplings. One long side of the tent sheltered a low building with no windows. The remaining area was a honeycomb of cubicles.

First stop, the big tree. By the time Andrea caught up with her men, Jonathan was looking through one of the many telescopes mounted in a circle around the tree. A high flexglass wall, completely encircling the tree, separated the tree from the people and the telescopes.

The tree was roughly oaken in overall shape and size, but close up it looked more like some giant ocean-dwelling animal/plant thing. Branches, twigs and leaves were an illusion. It was all one structure sculpted into a counterfeit tree shape. It had a meaty quality. Standing flesh, with a Salvador Dalí shark lurking inside. There was a slightly putrid aroma, peculiar to replant trees. The peppery smell of the "foliage" could not mask the odor of decay coming from the ground at the base of the tree.

Up in the tree there was movement. A low growl. All the telescopes on this side of the tree turned in unison, like seaweed swaying in a current. Shouts of, "I see it!" and "There!" Andrea looked up. Her breath caught. There it was, crawling along a large branch, with deceptive chameleonlike deliberation.

She turned away, unconsciously shielding Cindy from the spectacle. But Cindy squirmed and wriggled, and slowly slipped, like a lead weight, to the ground. *Unwillingness triples a three-year-old's weight,* Andrea thought, as she let go.

Cindy ran to her brother, shouting and tugging his pant leg. "I want to see! Let me look!"

Jonathan, in a surprising moment of magnanimity, said, "OK, Sis. But you're too short. Here. I'll hold you."

He got behind her and gave her a bear hug around the tummy. As he got set to lift, Andrea started to say—

But the touch of Bill's hand on her shoulder stopped her and she realized that this moment should not be denied.

Jonathan straightened up and Cindy got her eye to the eyepiece and held onto the telescope with both hands. "I can't see anything. It's all moving around."

"Hold *still!*"

"*You* hold still!"

Bill took over, and steadied Cindy on his left hip. When she sighted the reptant he explained in calm soothing tones how it was designed for living in trees; big claws, perfect for holding on; big eyes, perfect for seeing in the dark, and how it never sleeps. Always patrolling . . . always patrolling.

It was easily the size of a leopard, but it looked like an evolutionary practical joke, stranger than a xenophobic Darwin could have concocted in a drugged dream. Its eight large muscular legs (or four legs and four

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arms, as some described them), covered in wicked-looking armor, had no less wicked-looking talons on birdlike feet.

Andrea felt tense and miserable. Even without a telescope the reptant repulsed her.

"It's hungry, Daddy. Look at it eat!"

Andrea didn't need to see. Memories crowded into her. Images indelibly burned in from past trips to this place, from docuvids and pixboox she'd studied as part of her orientation, and from *that* day. She saw the mouth, cruelest joke of all. Opposing pairs of fangs, the size of a saber-toothed tiger's canines, stood sentry outside a gaping hole that was more the upper terminus of the alimentary canal than a true mouth. Unfit for anything like chewing, it could only slurp down whole the spherical fruit that grew abundantly on the larger branches. Like an anteater, or more like a vacuum cleaner ingesting ping pong balls, that mouth could strip hundreds of the so-called "Earth Apples" off a branch in minutes.

Its eight legs, the saber-tooth mandibles and the huge, fully retractable eyes gave the monster the appearance of an ant, an illusion spoiled only by its reptilian movements and the tail. Hence the name.

"It's so *cute!* Why can't we get one for a pet, Daddy?"

Andrea's amazement at the resilience and malleability of a child's mind made her smile. In Cindy, Andrea was looking across a psychological gap as great as the physical gulf between Earth and Phoenix. She'd never understand Cindy's acceptance of this true bug-eyed monster. Ironically, Andrea had begun to regard *herself* as the feral child "rescued" from the "wilds," and who would never adapt, only because the opportunity was past and other matters now occupied those brain cells.

For the good of her children, she realized, she had no option but to cultivate alienness in them.

The thought stung.

"DEMONSTRATION IN 15 MINUTES. DEMONSTRATION IN 15 MINUTES."

A little too abruptly, Andrea gathered Cindy up and hurried to the building, along with scores of other small children and their mothers. Through a door at one end of the long blank wall they entered a different world—windowless, bright, colorful and filled with every conceivable toy. The children streamed in and dispersed with the rush and turbulence of fast water. The moms followed slowly, swirling and mixing in the eddies, greeting one another. Some, like Andrea, hoped for a few words with other newcomers like themselves.

"Julie! Hi! Over here. Is it Harry's time this year?"

"No, no. He's over there. Jonathan?"

"Yes. He and Bill are watching the demonstration. I'll be going with them for the shooting later. Can you keep an eye on Cindy then?"

"Sure."

"Oh, I hate this, Julie. Jonathan's only six."

Julie suddenly seemed close to tears. "I know. I can't stand the thought of Harry doing it next year, either." She shook her head to regain control.

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Then the two transplanted women fell silent. Their eyes lost focus and they listened involuntarily for clues about the mayhem taking place back at the tree.

As Andrea watched the children at play she could visualize all too well what was going on outside. Inside the windowless play room most of the other moms, native-born obviously, were relaxed and engaged in chit chat, *as nursery employees brought a caged animal (usually some native rodent-like climber) to the base of the tree.*

Cindy, recognizing a friend, ran around in circles with her, screaming merrily, *as the cage was lifted by a crane to the top of the tree.*

Julie's son finally had his chance at a vid game, biting his lip and smiling in turns, *as a spring-loaded latch released, opening the cage, dumping the helpless animal into the treetop.*

Cindy and her friend settled down to play house, serving tea to a stuffed toy animal propped up in a chair, *as the animal got its bearings in the tree. The leaden foliage gave no warning rustle as the reptant streaked through the branches toward its victim.*

Even if the doomed intruder had time to react, there would be no escape. If talons and mandibles didn't get it, a long tongue, tip barbed like a harpoon, could spear it lightning-fast as much as six meters away. Then it would haul its victim in and hold it, the razor mandibles cutting through flesh and bone in order to free the tongue. Holding the trespasser in its grappling hook grip (eyes fully retracted into its skull for protection) the reptant's arm and leg talons would rip the animal's body, almost or already dead, to ribbons.

A horrific scream penetrated faintly into the play room. It shocked some of the women back to the moment, and went unheard by the others, or by the children.

By this time the reptant would have dropped its victim's remains from the tree. Cindy hugged a stuffed toy reptant, spun and fell into a sea of pillows.

"Weeeeeeeeee. . . !"

For her daughter's sake, Andrea urged her face into a smile.

Bill appeared at the door. His apologetic, almost embarrassed grin told Andrea that the time had come—time to leave Cindy in the care of toys and pillows and mothers without sons eager to embark on their manhood this year.

Jonathan was wide-eyed and jabbering as the three Formans walked toward the staging area. "Wow, Mom, that thing was fast! You should have seen it. The Phoenicoon never had a chance!"

Andrea smiled and let Bill quietly deflect Jonathan's comments away from her. Deflect but not stop. The boy was a torrent. So much to absorb. So much to filter through trusted ears and minds.

Andrea savored the sound of her husband's voice, and the feel of his arm around her waist. Umbrellas in an unpleasant rain.

They entered a miniature forest of potted reptant saplings. Jonathan was

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off on a frenetic run, darting randomly from tree to tree, to touch, feel, judge. Andrea and Bill followed at a leisurely stroll, defining the mathematical average of their son's Brownian motion through the place.

When at last Jonathan settled on one particular tree, Bill went over and squatted next to him. Together they appraised the choice. Bill droned on comfortably about height, texture, color, smell, and prospects for it to survive replanting. He had an arm draped casually over Jonathan's shoulders. Those strong, expressive arms and hands. They said more to Andrea than her taciturn man ever spoke.

While nursery employees took the tree to a cubicle reserved for them, the Formans proceeded to the cages.

The baby reptants reacted sluggishly to the excited faces and the little boys' fingers tapping on their flexglass cages. The animals, all roughly the size of newborn puppies, were rounder and softer looking than the adult in the big tree. Only those oversized eyes betrayed them. No youthful trust and eagerness there. Only disdain.

Yet Andrea felt an odd sympathy for the immature ghoul Bill and Jonathan finally selected. Was there a universal attraction for the young of any species, or was it her awareness that her own son was about to. . . .

She should be glad, she knew, should relish this little revenge. But she only felt dread—partly for her son's upcoming ordeal, and partly for her own.

"Mom? You're coming with us, aren't you?"

Andrea smiled uncertainly. It was the look in Bill's eyes that gave her the strength to say, "Sure, son."

Jonathan carried the reptant cage to the cubicle where their tree waited. The boy was strangely subdued. He would glance at the reptant, then stare forward moodily. Reality seeping in. Andrea wanted to hug him and take him away from this. But she couldn't. This was a man's rite of passage.

The cubicle, four meters wide and six long, consisted of tent walls three meters high on all four sides. Bill pulled aside the entrance flap and let Andrea and a quiet Jonathan in.

Along the opposite end, a flexglass wall one meter high ran against the tent wall at the back, forward along both sides, then it turned and formed a partition that bisected the area into two equal parts. Inside this flexglass enclosure, at the back of the cubicle, stood the sapling. Formed into the flexglass wall, in the middle of the cubicle, was a tray with a white porcelain bowl and stainless steel surgical knives.

Bill leaned over the partition and set the cage on the ground. He took a short length of rope from a pocket, slipped one end through a latch on the cage and draped the other end over the partition.

"Ready, son?"

"I . . . I guess so."

Bill's rifle leaned against the flexglass wall. "Here, son, take this and get the feel of it. Just like we practiced."

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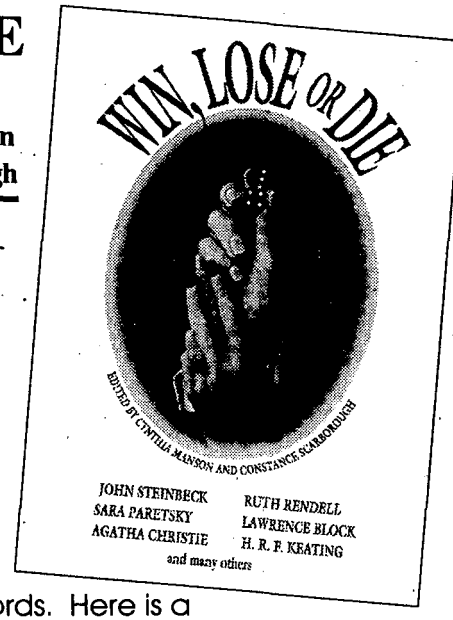
The Odds Are for Murder

WIN, LOSE OR DIE

Edited by Cynthia Manson and Constance Scarborough



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Jonathan hefted the weapon and cradled it on a cushioned depression in the top edge of the partition.

Bill helped him hold the gun; sight; aim. *The pantomime of death,* Andrea thought.

"OK, son, just relax a minute." Bill pulled the rope. The cage sprang open and the reptant, which had been caught in the wilds during its very first steps away from its birth tree, now resumed an interrupted quest.

Its faltering, agonized movements showed that it was almost blind and very immature. Not premature, though. Like a terrestrial marsupial, it knew exactly what to do, and where to go. With constant swings of its head back and forth, to triangulate on the faint scent of the virgin sapling, it made a slow straight line course to the tree.

Watching, Andrea saw another infant's journey toward another reptant tree. She was reliving it all again now, and glimpsing some hints of answers in the xenobiological mysteries being played out in front of her.

When the infant reptant reached the tree, it climbed unhesitatingly up the specially textured pot. Half way up the sapling's trunk it stopped, exhausted. Within a minute it began to rub the branches nearby with the inside of its legs and arms.

"Just watch, Jon," Bill whispered. "'Til it finishes marking its territory."

Jonathan watched, his face mirroring Andrea's own inner turbulence. When Bill was satisfied with the reptant's progress, he placed a big hand, feather soft, on his son's shoulder. "OK, son," he whispered, "Now."

Jonathan tore his eyes away from the tree, laid his cheek on the rifle's stock, and reacquired the target through the scope.

"Nice slow squeeze."

Nothing happened.

"Son?"

Eyes still on his target, Jonathan's voice was small and pleading. "I can't."

Bill gave Jonathan's shoulder a small reassuring pat. Andrea could almost feel it. But Bill's reasonable words were almost lost in the buzzing in her ears.

Softly, Bill coaxed, "Remember what it grows into, son. Remember, the new baby has to eat. We're counting on you."

"But—"

"You're fine. Remember . . . detachment."

Her husband must have known that Jonathan was crying, but he didn't acknowledge it.

"But it's just a *baby,*" Jonathan sobbed. *Yes,* Andrea thought, in sudden despair, *Like the sister you don't even know about.*

"I know, son."

The genuine sympathy in his father's voice must have pushed Jonathan to accept the inescapability of it all. Miserably, eyes closed, he pulled the trigger.

The reptant was only stunned by the tranquilizer. Jonathan would actually have to kill, skin, and dissect it with the surgical knife.

Wondering if Anna had still been alive when the reptant had begun to

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cut her to pieces, Andrea watched in a daze as her son became a man.

Replant Eve. Children finally asleep. Andrea on the couch, her back against Bill, his arm around her, his hand on her stomach. Shared smiles whenever the baby moved.

A collage of memories distracted Andrea from her reading.

Decorating the Christmas tree. Riding on her father's shoulders to put the angel on the very tip.

Jonathan riding Bill's shoulders to put the dried skin of the infant reptant on the top of the reptant tree in the living room. The leathery skin, splayed wide open before being dried, looked something like an angel. An ugly angel of death, perched like a vulture in her living room; before that, in her oven; before that, in her freezer, along with the frozen Replant dinner victuals.

Christmas dinners on Earth. Cooking. The wonderful smells.

The gory, bloody dissection at the nursery. The skinning. The removal of scent glands. The bureaucracy of the Chemplex. Tomorrow's dinner of Earth Apples, baby reptant organs and meager, stringy reptant flesh.

"Do you think he's got his part memorized?" Bill asked, probably in response to the tension he felt building in her.

"I guess."

"How about you?"

"Oh . . . sure. I'm just afraid of gagging on the meat again."

"You'll do fine. Be sure to make a big fuss over Jonathan for providing it."

Bill had been hovering protectively over Jonathan since the nursery, helping the boy deal with the double-punch trauma of killing and then butchering.

"Bill, tell me again why we can't just kill the reptants in the tree where Anna died."

Wearily, Bill answered, "Please, Andrea. Not tonight. We've been over this. You know they'll never leave that tree. We're safe as long as we stay away from it."

"But how can you stand it, knowing that they're still so close?"

"Do you think I like it? But there's more at stake here."

"Of course." Andrea spat the words out contemptuously. "Your precious *ahimsa*. 'Don't touch the natural order.'" She felt her frustration more sharply during the holidays. "She was our *baby*, Bill!"

He tried to comfort her, but she stiffened. Her cynicism about the moral and ethical codes of Phoenix was exploding inside her. "Tell me," she said, in challenge, "Tell me so I can understand why we do all this ritual butchering around Replant Day anyway."

Bill looked confused. "It's all in the Sayings. You've been reading about it constantly for the past few weeks . . . few years. What can I add?"

Andrea sat up and looked Bill in the eyes. "I don't mean that Neo-Jainist liturgy cobbled together from 300-year-old lab books and diaries. I mean *why?* Why put so much on a little boy?"

"Dear, in Earth years, he's almost ten."

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"Even so. I don't understand what it accomplishes. None of it is really necessary. Others do that dirty work for us the rest of the year. Besides, can't they make our trees bear fruit without having to use the reptants at all?"

"They're not even close. They don't have the equipment. It's all they can do to figure out the formulas and manufacture the sprays. Considering that every guardian reptant produces a one-of-a-kind marker, it's amazing they can keep up as well as they do. You know all that."

"Yes, but—"

"And besides, if we all did *only* what's necessary—no rituals . . . no ceremonies—that'd be so . . . I don't know . . . boring . . . shallow."

"Well, it's still not right. It hurt Jon. Maybe even scarred him. You must have seen that. He's only a child."

"Honey, he's not scarred, and he's not a child anymore. This isn't only about him. Replant time is for the family, too. You've never grasped that. This year I was hoping—"

"I lost *everything* on Earth by coming here, Bill. I accepted that, but there's nothing here I can call my own. Jon and Cindy make up for that a little. I created them. They're mine. But I lost Anna, and now I'm losing Jon—"

"You're not losing—"

"And I want to know *why!*"

Bill sighed. He sat up, put elbows on knees, and began massaging his hands and the long scar on his right forearm. "You won't accept the standard answers. Even *I* can't be *sure* if it's to 'make us one with the land,' or, 'to exorcise the shame of having to kill in order to survive.' I only know the ceremony feels right—important. It gives us clarity . . . perspective. Phoenix is still a dangerous place, and innocence is something we can't afford forever. But if I had to tell you *why?* I really don't know. I shouldn't have to."

He'd spoken in dismay, not anger, but Andrea knew that she had, once again, pushed him too far—to a wall he couldn't scale. She was, again, demanding explanations for his mysteries when she had none for mysteries of her own. There was no rational component to the beliefs of her youth, so it was unfair to demand reasons for his.

There was a whimper from Jonathan's bedroom. A quick gentle hand on her cheek, "I'll check on him," and Bill was gone.

Andrea faced, as if anew, the knowledge that her own happiness and sense of right made no difference in the dance of life and the cycle of the generations on this planet. She could remain a self-righteous misfit, or she could begin to let go of her pain.

With a sad smile, Andrea wondered whose side she was on.

Maybe it *was* time to give up childishness. But it wasn't fair. It *hurt*.

Andrea put her hand to her cheek. Bill's touch had been warm and kind. His pain at losing Anna had been no less than her own.

Quietly, very alone and for what felt like the very first time, Andrea cried for Anna, and for her own lost youth.

The dinner had gone well. Jonathan

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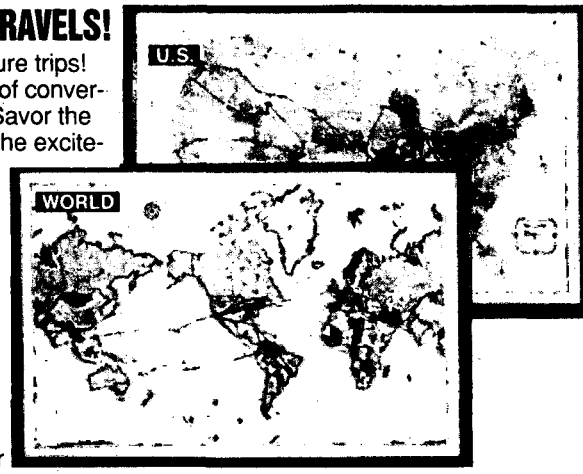

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had been the center of attention. He got the reptant's liver, the mighty hunter's reward.

Andrea felt relaxed and Bill gave her a proud smile at every opportunity.

The tree, now outside getting acclimated to its place in the backyard, had already formed a few berry-sized Earth Apples exactly where the baby reptant had marked it. And, responding faithfully to the winter solstice, the tree had produced a single perfect red flower. Cindy and Jonathan had awakened with the dawn and tip-toed downstairs, excited, like children getting their first look at their Christmas presents—

No, Andrea corrected herself, *like children looking at the first reptant blossom of the season.*

After dinner, everyone assembled outside around the new tree. Bill and Jonathan lowered the new sapling and its biodegradable pot into a newly-dug hole. Bill removed the dried reptant skin "angel" from the top of the tree and placed it into the hole, making this ritual as much funeral as celebration of new life.

Then the Sayings.

Using a small gardening shovel, Bill took a scoop of soil and, before throwing it into the hole, said, "This is for the one who found, the twenty who followed, and the two who survived."

Another scoop of soil. "This is for the tree that sustained them, and the guardians that killed them."

Another scoop, "This is for all those who followed since the last and first man and woman learned the secrets of the reptant plant and animal."

Bill handed the scoop to a noticeably more mature Jonathan. Andrea saw, reflected in his face, the earnestness and sincerity in Bill's. Andrea wondered how she could possibly deny them that belief, based, as it was, on well-documented events. Belief based on knowledge . . . was that concept necessarily self-contradicting? On this brave new world, perhaps not.

Jonathan filled the scoop and embarked haltingly on his part of the Sayings. "This is for Phoenix, which . . . eh . . . humbles us."

Scoop, "Which rejected the twenty as an . . . immune . . . system rejects . . . foreign . . . organisms."

Scoop, "This is for the eighteen who died, eating the poisoned . . . bounty of Phoenix."

Scoop, "Or who fell to the sharp fangs and claws of the reptant."

Scoop, "This is for the Earth Apples, the only native fruit we can eat, and for the guardian reptants, our . . . nemesis, and, as we learned in the fullness of time, our salvation."

Jonathan looked intently at the new tree, wrestling, Andrea could tell, with the now enriched meanings of the Sayings. *Good, son. Don't let what you believe degenerate into meaningless gestures. Don't ever let your mind hide behind empty forms and obedient posturing.* She felt herself pleading silently with him, surprised at her own feelings.

It must have shown in her face. Bill gave her one of his *everything-OK?* smiles.

Jonathan handed the scoop to

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Cindy. Too young to participate fully in the Sayings, Cindy still had a role to play. She began resolutely shoveling dirt into the hole, while answering questions.

Bill asked, "Cindy, why do we plant these trees in our backyard?"

With mock exasperation she said, "So we can eat, silly." She giggled, balancing an especially large load of dirt on the scoop.

Jonathan asked, pointing to the two large reptant trees standing at the east end of the property, "Why do we have those two big ones over there?"

"One's for Mommy, and one's for Daddy!" Warming to the exercise she continued, pointing with her free hand to the other trees, "And that one's for you, and that one's for me. . . ." and lost her momentum as her delicately balanced pile of topsoil collapsed onto the grass.

Andrea looked past Cindy, past the fence, to the large reptant tree beyond. The grass around it was taller and a healthier blue/green color thanks to the nutrients that rained sporadically down on it from above. Anna's blood had helped fertilize that ground.

Andrea thought about all the years she had pleaded with Bill to fill a tranquilizer dart with poison and kill the guardian reptants there. All those years he had refused. His beliefs, once so attractive to her, had made it impossible for him. She knew he was in pain, but her own pain had left her bereft of compassion for his. *How I must have hurt him,* she thought.

Andrea's eyes strayed to the spot near the house where another reptant tree sapling had once stood. She remembered how it had gone sterile for lack of spraying. She watched, again, as the ghost of a younger Bill tore it out of the ground when his frustration had boiled over, climbed the fence and, as if hypnotized, marched unarmed straight to the tree where Anna had died. He had returned to his senses only when Andrea, sensing clearly for the first time in five years what she had and what she stood to lose, had sprinted past him and turned, taunting him. "Let the monsters fertilize their tree with *both* of us then! Is *that* what you want?"

Bill had swept her up as from before a runaway train and carried her all the way back to the house. There they had fought savagely. They had released the demons that had patrolled their hearts for so long, and finally, after an ocean of tears, they had emerged as a new man and woman. Resurfaced, Andrea realized now, but not completely reborn.

"Cindy, how do the Earth Apples grow?"

Brushing fugitive dirt into the hole with her hands, Cindy rolled her eyes at her dad. "That's easy, Daddy. You spray the trees with stuff you get at the Chemplex. The more you spray the more apples we get to eat."

Andrea was struck by the simplicity and innocence of her baby's answer. And yet, Cindy too would someday face the dark underside of the miracle of human survival on Phoenix; the slaying and skinning of baby animals, the messy, traumatic dissection, the deciphering and registering of chemical formulas and a life-long depen-

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dence on tree sprays. Some day Cindy too would take a child of her own to the reptant nursery (with fewer qualms, certainly, than Andrea had had). But could any mother be totally untroubled by the bloody ritual? At least for Cindy it would not serve, Andrea prayed, as a frustrating reminder and unsatisfying revenge for the death of a child.

The silence, the break in the rhythm and flow of the Replant Ceremony, woke Andrea from her musings. It was her turn, and they were waiting. *Be here now,* she admonished herself.

"Tell us what you are thankful for, Cindy."

It was something new and unexpected. Something Andrea wanted to add to the ceremony; something she could call her own. Bill took it in stride. Jonathan squinted in thought and then shrugged. Cindy didn't miss a beat.

"I like my new teacher, and my friends on-line at school. And I *love* Earth Apples!"

They let Cindy continue the shoveling as Andrea asked Jonathan, "What are *you* thankful for, Jon?"

The young man gave the question serious thought, and with almost adult gravity answered, "I'm thankful for the new tree, and how now I'm . . . I'm . . . older." His expression showed that he knew the word was wrong, but that he didn't have a word for what he meant. "I'm thankful that all our trees are healthy, and for how hard Dad works to keep them watered and sprayed."

Andrea looked at her husband. "What are *you* thankful for, Bill?"

Bill beamed at his family, each of them bundled up like Phoenibees, faces rosy and alive in the cold air. He looked at Andrea, approving her addition to the ceremony. "I'm thankful for this family, the best a man could ever wish for. I'm thankful that Mom came here, and helped me make a loving home. And I'm thankful for the stories she tells about Earth, helping us to remember the old ways."

They all looked at Andrea for a moment, then in ragged unison asked, "What are *you* thankful for, Mommy?"

What *was* she thankful for? For her new life here, where the edge of the map began at the end of their property? For the *freedom from the tyrannies of consumer-oriented economic pressures?* For *family ties bound firmly into the bedrock foundation of a new order?* The human settlement on Phoenix had delivered on many of the claims and promises made for star traveling in general. The inducements that had brought her here had been, by and large, fulfilled. The gamble had been a good one, in spite of staggering losses.

"I'm thankful for all of you." An earnest look at Bill. "I'm thankful for how you make me feel truly at home, so far away from Earth."

Then it was her turn to use the scoop.

Andrea took a scoop of dirt and tossed it into the hole. "This is for those no longer with us."

Scoop

"For those lost to starvation."

Scoop

"For those lost to the guardian reptants."

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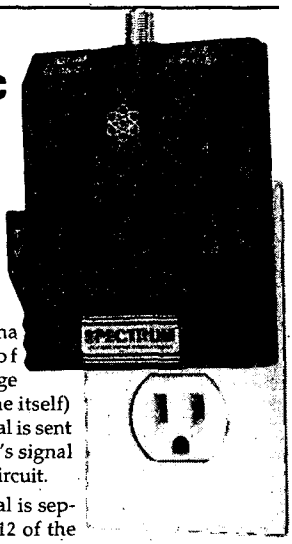
TECHNOLOGY UPDATE

Fifteen years of microelectronic research makes conventional antennas a thing of the past!

This little box uses your home's electrical wiring to give non-subscribers, cable subscribers and satellite users better television reception!



Fifteen years of microelectronics research has resulted in a remarkable device, the Spectrum Universal Antenna/Tuner, that makes conventional antennas obsolete.

Advanced technology. Imagine a television picture so clear you'd swear you were there...live. Plug the Spectrum Antenna into an outlet, plug your TV into the Spectrum and get ready for great reception!

How it works. Broadcast TV signals are sent out from the local station. They interface with your home's AC power line system (a huge aerial antenna network of wiring as large as your home itself) and the signal is sent to Spectrum's signal processing circuit.

The signal is separated into 12 of the best antenna configurations. These signals route themselves into 12 separate circuits. The *Signal Switch* control gathers 12 of the best antenna configurations. Use the *Signal Search* control to select from the best signal. The *Fine Tuner* circuit gives your TV crisp, clear reception.

Try it risk-free. The Spectrum Universal Antenna/Tuner comes with our risk-free trial and a 90-day manufacturer's warranty. If you're not satisfied, return it for a "No Questions Asked" refund.

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- ***Cable users***
- ***Non-cable users***
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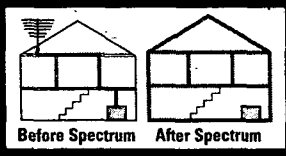

How does Spectrum use electrical wiring as an antenna? Believe it or not, Spectrum simply "activates" the giant antenna that already exists in your home. Essentially, it uses all of the wiring throughout your home's walls and ceilings to make an antenna as large as your house for unbelievably clear reception of local broadcasting.

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Scoop

"For all the reptants we killed."

Scoop

"And for everyone on Earth, lost in the mists of time."

Andrea put down the scoop and stood up. Hand in hand, the whole family formed a ring around the new tree. They all lowered their eyes and Bill closed the ceremony with words almost as old as the tentative human presence on Phoenix.

"This soil, like the karma we can never escape, is our abode, but not our home. Imperfectly our souls strive for freedom, but we know that Moksha begins in the wholeness of Phoenix. So let us do right, and do least, and live in harmony with this separate creation."

Andrea felt a surge within her. *This new life here on Phoenix is truly all I have.* The awareness pressed in on her with the insistence of an ocean current. A new emotion bubbled up to the back of Andrea's throat. It felt good. Important.

She bent down to talk to Cindy. "Cindy, we don't plant a new tree during Replant time *every* year. Why do you think we're planting one this year?"

Bill and Jonathan were grinning broadly.

Cindy looked at every tree in turn, then at the new tree. Then at her mother, suspiciously. "I don't know, Mommy. This new one's extra, unless . . . unless . . . *Mommy!?*"

"Yes, that's right, honey, you're going to have a new little sister or brother."

Cindy ran into her mother's arms. "Mommy, Mommy! That's super!"

"Yes, it is, isn't it? Now let's go inside and warm up."

"Mommy?"

"Yes?"

"I love you."

Bill and Jonathan stayed outside to finish the replanting. Bill instructed his son on the care and feeding of the new tree, which would be his first grown-up responsibility. Andrea was pleased to see Jonathan take his obligations to the unborn child seriously.

Andrea and Cindy were busy preparing Earth Apple tea for themselves and their hard working men. Cindy, a chatterbox in sudden bloom, wanted to know all about babies and about growing up on Earth. Andrea answered every question as best she could, glad for the lightness she felt.

Through the window she watched Bill and Jonathan at work, and grieved for the loss of her little boy. Then she returned to the tea party, feeling a newly forged bond with her daughter.

A door closes . . . a window opens, Andrea thought.

Bill and Jonathan came in and put four perfect little Earth Apples in a dish. "First Apples" from the new tree. Dessert. Solemnly they each took an apple and savored the special sweet taste.

In imitation of a gesture she had seen so often today, Cindy raised her cup of tea. "Happy Replant Day, Mommy."

"Happy Replant Day, sweetheart."

When it was time to refill the cups Andrea got up to fetch the tea pot. Jonathan offered to help and sur-

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prised her with a big hug near the stove.

"I love you, Mother."

She could barely reply, for she knew he meant it. Those strong little arms told her so much more than he could find words for. And she knew suddenly that she had *not* lost him after all. She wondered suddenly where her fears had come from, and where they had gone. She knew they'd be back tomorrow, but today she felt free of them, and it was a start.

Andrea's eyes brimmed with tears of happiness. The first in a long, long time. ■

IN TIMES TO COME

Our January issue marks this magazine's sixty-seventh anniversary. The cover may look a bit familiar, not because we're reprinting something from our past, but because this particular picture has shown up in quite a few places. It's one of the most stunningly spectacular "postcards" sent home by the Hubble telescope—and the Hubble has given us a *lot* of spectacular views! To the general public, the Hubble is perhaps best known as a very expensive toy that turned out to have something embarrassingly wrong with it; but even before the problem was fixed, that scope was doing things no scope on Earth could do. Since then, its advances have been even more dramatic, showing us not only objects but awesome dynamic processes in the Universe that no one has ever seen before. You've seen a few of those new views elsewhere, but next month we're very pleased to show (and tell) you more of them than you've probably seen anywhere else. Our "cover story" is not fiction, but the very true first-hand account of The Telescope That Could, by astronomer Christian Ready of the Space Telescope Science Institute.

The issue will, of course, also contain plenty of fiction, including Joseph H. Delaney's unnerving account of a need for flight security carried to levels even beyond those we've already encountered, a new "Knave" novelette by Laurence M. Janifer, and stories by Stephen L. Burns, Jerry Oltion, and Alexis Glynn Latner. Plus our annual Index to everything we printed in 1996, just in time to help you with your "AnLab" voting!

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James Benford

THE POWER BEAMING ROUTE TO SPACE

ROCKETS. They've been the way into space for as long as I remember—from the first—Goddard, Heinlein, Clarke. . . . There have been articles in *Analog* lately about how to restore momentum to the exploration and exploitation of space. Most depend on rockets, more efficient rocket schemes, electric rockets, clever schemes to reduce the horrendous cost per pound in orbit.

But maybe there's a better way to think about the development of space. Not that rockets aren't useful—they are. But they are most useful for moving mass from the surface into orbit. From that point on there is a competitor.

Two factors dominate space development: the cost of transportation to and in space, and the availability of operating power once there. I advocate that propulsion and power can both be done with the same technology: beaming electromagnetic power from ground-based stations. Estimates are that "power beaming," as it is called, can cost a tenth of doing some missions using rockets.

The basic idea is to beam energy into space using large antennas fed by high-power microwave sources. The beam is received in orbit and either converted to electrical power for various uses or the momentum of the electromagnetic beam is directly used for propulsion.

The argument for such an approach is clear: It is often more economical to transmit power than to move the generating equipment to where it's needed. Power beaming becomes economical only when it can move power from where it is cheap and accessible to places where it is hard to come by. Modern power systems are expensive and complex, but if power for space can be located where the required

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skilled people and equipment are located—on Earth—then it becomes more practical.

If large-scale space power beaming is to become a reality it must be broadly attractive: it must serve a real need, be environmentally tolerable, and make business sense—which means attract investment and have major energy or aerospace firms support and lobby for it.

The goal is substantial cost savings by using the same technology to perform different functions. You can start small with near-term *commercial* applications, so that technology is developed in industry. And then you build on this business base to expand the space infrastructure to other activities, some commercial, some not.

I'm not saying rockets can be cast aside. Far from it; rockets, and variants such as solar electric, are part of such a space infrastructure too.

HISTORY

Dick Dickinson and William Brown did the first high-power microwave beaming experimental work in 1975. They transmitted 30 kw average power at Goldstone over a range of one mile. A 25 m^2 array of elements collected the microwave beam at a conversion efficiency above 80%. The frequency was near 2.4 GHz, the same as your microwave oven, using technology of the 1950s.

In the 1960-1975 era, when the early power-beaming concept work by Robert L. Forward, Martin Willinski, and William Brown was done, the only technologies available at high average powers were in the centimeter wavelength region below 10 GHz. The results were large systems, which meant huge capital investment.

Recently a concept for the most difficult of missions, direct launch into Earth orbit, was advanced by Benford and Myrabo. To provide such power without an enormous facility they had to look at the millimeter range—in the hundreds of GHz. By downsizing they found cost reductions of two orders of magnitude compared to launch with today's rockets. Still the capital investment required for such a large facility (550 meters square), not to mention the development program, was so large as to be impractical to build from scratch. So how could we get there—is there an economical development path that builds up from smaller commercial businesses? Yes, and it doesn't depend much on government support, either.

GROUND-BASED TRANSMITTERS

Power beaming through the atmosphere depends upon two principal factors, the power of the available sources and the attenuation through the atmosphere. At 1-10 GHz, frequencies chosen for previous beaming, attenuation is not a factor and the highest peak power sources were available there. But there are advantages to going to much higher frequencies. Because their size scales down with frequency, broadcasting and receiving antennas get much smaller, dropping capital cost. Real estate gets smaller, thus cheaper. How about going further, to much higher frequency, to lasers? Relative to lasers, sources at the higher microwave and millimeter fre-

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quencies are much less expensive and have much higher efficiency.

There are atmospheric windows at 95 GHz and around 220-250 GHz where attenuation, due to water molecule absorption, is high at the surface, but slight at high altitudes because moisture hugs close to sea level. For example, transmission efficiency for vertical beaming through the atmosphere at around 220 GHz from a 4 kilometer altitude site is 95%, compared with 45% at sea level. Considering the added cost of construction at really high altitudes, desert locations at intermediate altitudes, such as Owens Valley in the California desert, may be better. (The problem of air breakdown at high altitudes is eliminated because at such high frequencies breakdown doesn't happen.) A good frequency is 245 GHz where less restricted radiating is allowed by the government.

Luckily, technology development for fusion has produced high power sources at such frequencies. Everybody knows microwaves now from home cooking, and most know radar uses the same technology. Now there are new devices with much higher power and energy. They are very different from lower frequency microwave devices such as magnetrons, klystrons and traveling wave tubes. They use new ways of getting energy from electrons into electromagnetic waves. The appropriate sources for producing radiation around the 245 GHz band are the gyrotron family, the Cerenkov source family, and the free electron lasers, so there are lots of choices. The most advanced are gyrotrons in the megawatt class, producing microwave energy pulses at the million Joule level. For comparison, a powerful radar produces about 10 Joules per pulse. Present fusion development programs call for 280 GHz gyrotrons generating a megawatt of

Alternate Millimeter Wave Sources

Millimeter waves and microwaves are generated by passing an electron beam through a region built to extract energy into the waves at a specific frequency. *Cerenkov* sources slow down the electromagnetic waves in a region so that waves in the electron beam—space charge waves—can match speed with them. The most common way to slow the waves is to shape the wall of the conducting tube surrounding the beam in a periodic wiggle so the beam interacts with the image charges in the walls. In the *gyrotrons* electrons gyrate around magnetic field lines and bunch up and radiate at a frequency determined by the magnetic field. In the *free electron* laser the electrons undulate in a wiggling magnetic field, which causes them to bunch up and radiate.

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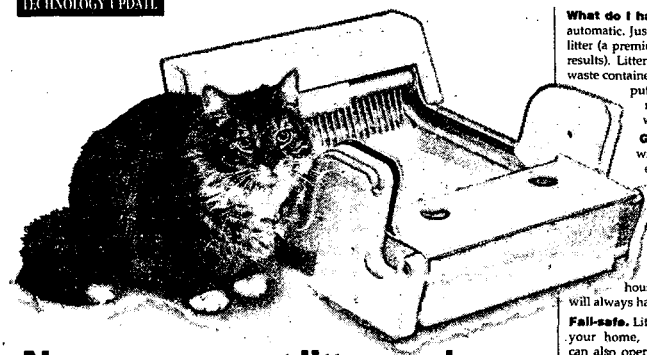


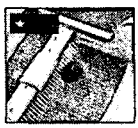
Never scoop cat litter again... Computer technology creates the only self-cleaning litter box!

You and your cat will love the way LitterMaid eliminates the hassle, mess and odor of the ordinary litter box.

by Shirley Liberles

Computer technology revolutionizes the litter box...

LitterMaid, a patented product from Waters Research Company, is a completely self-cleaning litter box operated by a microprocessor, but your cat uses it just like a normal litter box. Approximately 10 minutes after LitterMaid's "electric eye" senses that your cat has exited the litter box, it signals the start-up of the automatic sifting comb. ★ The comb sifts through the litter, scooping up any waste. ★★ The waste is deposited into a sealed, air-tight waste container and the comb returns to its original position, smoothing the litter. The system resets, ready to repeat its cycle the next time your cat uses the litter box. ★★★ When the waste container is full, you can either throw it away and put a new one in its place or empty it and reuse it for up to one year!



House cats. Large or small, affectionate or independent, young or old, long-haired or short, they all create the same dilemma for their owners—the litter box.

There are few things I can think of that are as foul as cleaning the litter box *at my house. Even when I clean it* daily, it's difficult to keep odor away. And this problem is multiplied because I have two cats! But because I love them, and that's virtually all the maintenance they require, I do it...because there's no other option.

Well, today there's a solution that cat owners across the country will be thrilled about. LitterMaid, manufactured by Waters Research, is destined to make ordinary litter boxes obsolete!

Automatic cleaning. LitterMaid is a computerized, completely self-cleaning litter box. Its operation is controlled by a microprocessor. An electric eye senses when the cat has exited the litter box, and minutes later, it signals the start-up of the automatic sifting comb. The comb sifts through the litter, scoops up any waste, and deposits it into a sealed, air-tight disposable waste container. The comb then returns to its original position, smoothing the litter. LitterMaid is now ready to begin another cycle as soon as necessary.

Revolutionary. LitterMaid may permanently change the face of the cat-product industry. Cat owners will never again have to endure the unsanitary and odor-filled chore of cleaning their cat's litter box. Plus, there will be no more embarrassing litter-box odor in your home, because the disposable waste container is sealed and totally air-tight!

What do I have to do? LitterMaid is fully automatic. Just fill the pan with *clumping* cat litter (a premium brand will provide the best results). LitterMaid does the rest! When the waste container is full, just throw it away and put a new one in its place. You'll never have unsanitary contact with cat waste again!

Good for your cat. Not only will LitterMaid make *your* life easier, it will make the litter box a nicer place for your cat. Most cats dislike using litter boxes that are dirty, and that can lead to them not going to the bathroom. Or worse, they may choose to use the bathroom around the house! With LitterMaid, your cat will always have a healthy, clean litter box.

Fail-safe. LitterMaid plugs into any outlet in your home, but it can also operate on eight "D" batteries. So even in the event of a power failure, LitterMaid will continue cleaning. It is equipped with an alarm that alerts you when the batteries are running low.

Put it *anywhere*. LitterMaid is only a couple inches longer and taller than conventional cat litter boxes. It should fit easily where your litter box is now—and you should put it there at first, until your cat gets used to it. But later, because LitterMaid is odorless and sanitary, you have the opportunity to place it virtually anywhere in your home—without any ordinary litter-box worries!

LitterMaid eliminates...

- Embarrassing litter-box odors
- Having to endure the unsanitary and odor-filled chore of cleaning your cat's litter box
- Limiting the areas within your home in which you can place the litter box
- Worrying about how to clean the litter box if you go on vacation
- Having to ask visitors to use the litter box because it's dirty
- Some risk of exchange disease from the cat's feces—this is especially important for pregnant women and people with immune deficiencies

Try it risk-free. LitterMaid is backed by our exclusive risk-free home trial. Try it, and if you're not completely satisfied, return it within 90 days for a full refund, "No Questions Asked." It's also backed by a one-year manufacturer's limited warranty.

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power continuously, quite sufficient for the applications we need.

A POWER BEAMING ARRAY MODULE

The development path is to start with a small system and expand it. So the natural approach is a modular system, with a control center operating a number of identical power-beaming modules, each consisting of a source of millimeter waves and an antenna. In fact such a power-beaming module is within the present state-of-the-art; both the source and antenna technical barriers have already been surmounted.

What about the antennas? They already exist in the form of millimeter wave telescopes scattered around the world and used for millimeter and submillimeter wave astronomy. At present there are about 20 such telescopes with diameters about 10 meters, but varying up to 45 meters. They have high efficiency; the Cal Tech Submillimeter Observatory has an aperture efficiency of 75% for frequencies up to 1,000 GHz. Some are at very high altitude sites such as Mauna Kea in Hawaii, some are at lower elevations in high, dry desert such as the Owens Valley Six Antenna Submillimeter Array. A key condition for the applications I'll describe is that the power beaming stations must be located at such altitudes.

The kind of power-beaming module needed, shown in Figure 1, consists of a thermally controlled parabolic antenna about 9 m in diameter with elevation axis located above azimuth control (AZ-EL), fed by a beam waveguide (BWG). The gyrotron transmitter and the low noise amplifier (LNA)

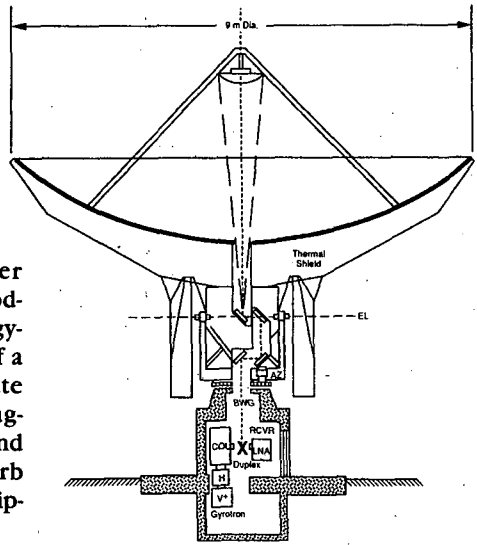

Figure 1: Millimeter wave power beaming module. The dish is fed by a gyrotron source made up of a high voltage V to generate the electron beam, a magnetic field H to guide it and a collector COL to absorb leftover beam. X is the flip-mirror.

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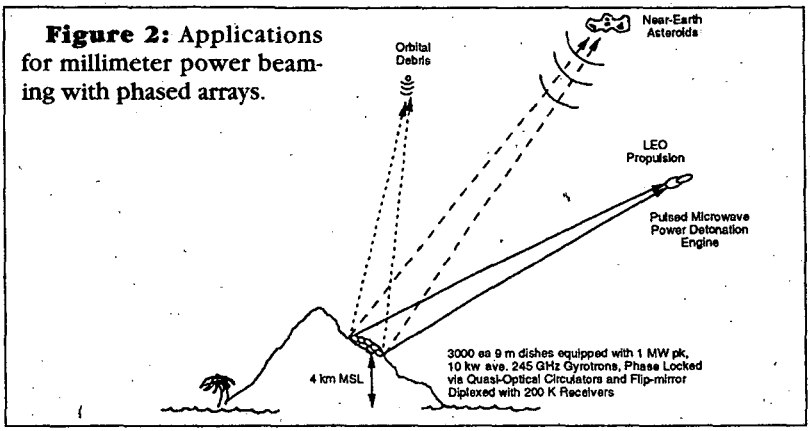
Near-Earth Asteroids
Orbital Debris
LEO Propulsion
Pulsed Microwave Power Detonation Engine
4 km MSL
3000 ea 9 m dishes equipped with 1 MW pk, 10 kw ave, 245 GHz Gyrotrons, Phase Locked via Quasi-Optical Circulators and Flip-mirror Diplexed with 200 K Receivers

Figure 2: Applications for millimeter power beaming with phased arrays.

receiver are housed in the antenna pedestal and are connected to the BWG feed system via a flip-mirror arrangement. The shape of the dish is kept right by a thermal shield.

For safety, all beamed power systems must have their transmitters interlocked with a safety surveillance radar subsystem. This will be required to protect the wayward plane even if the array is located in a restricted air space. If the intruder is about to enter, the options are to divert, dim or douse the beam.

DEVELOPING SPACE APPLICATIONS

What can we do with this power beaming module? The multi-purpose approach is shown in Figure 2, while Figures 3 and 4 show a logical development route for achieving applications in sequence by enlarging the facility. The number of power-beaming modules needed for each application is shown explicitly in Figure 3.

Orbital Debris: Orbital debris mapping would be the first objective and could be accomplished with a single power-beaming module. Such debris is increasing in total mass and its mass distribution is shifting. It's dangerous; a small object, say a bolt, can severely damage a satellite. And it's getting worse as old satellites break up and the parts collide, making smaller fragments. The space station plans to dodge such debris. But to dodge it you must first find it. Much of it is not identified by NORAD because of limited resolution, down to about 10 centimeters, due to using low microwave frequencies.

The technology is at hand to seek out and identify orbital debris down to millimeter scale and quantify its trajectory. It seems a likely commercial proposition. *Orbital Debris,* a recent book from the National Academy of Sciences, calls for the establishment of a common center for dissemination of orbital debris knowledge. I see no reason why this should be a governmental function—it could well be a profitable business. An orbital "weather service" would give early warning of impend-

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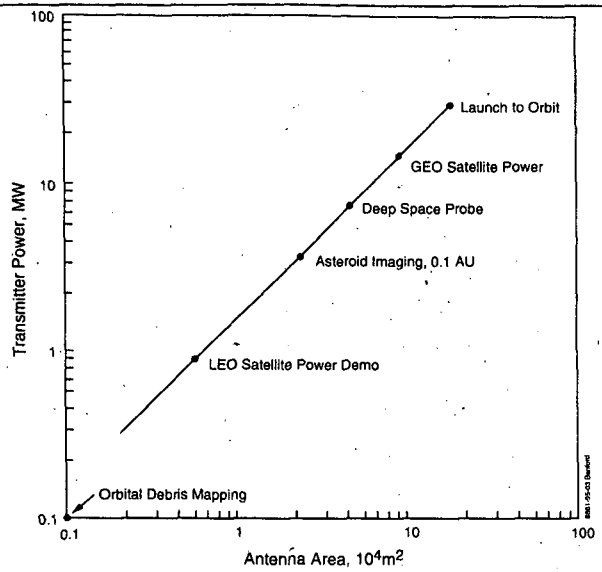

Figure 3: Development path for space power beaming. The antenna area unit is easy to visualize: 10^4 square meters is a square 100 meters on a side.

ing collisions between spacecraft and orbital debris of sizes a millimeter or greater. Dickinson calculates that millimeter scale objects can be located to within 10 meters at 1,000 km range using just one of the modules. In addition to finding the debris, the changing orbits of satellites can be precisely identified and tracked over time. Such a service is of interest to companies with orbital assets as well as the insurers of those assets.

Satellite Battery Recharge in LEO: Commercial communication satellites during periods of solar eclipse must use battery systems to provide onboard power. The lifetime of such batteries limits the operational lifetime of the entire platform. Recharging of satellite batteries in Low Earth Orbit (LEO) would take place with a few power beaming modules and can reach commercial possibilities with about 90. This gives ten times solar flux, i.e., 13.8 kW/m^2, on a satellite as it passes overhead. The beam is received by a rectifying antenna, or rectenna, which converts the millimeter waves to DC electricity. One estimate has shown that a power-beaming system from a single ground station providing 25 kW of power could produce direct cost savings to the communication satellite industry of a hundred million dollars per year by extending satellite lifetime. As station numbers grow, the economics get better. This gives an immediate commer-

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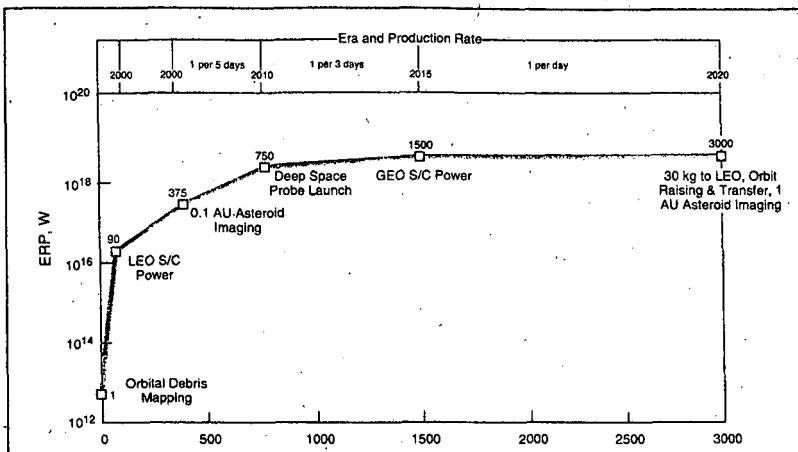

Figure 4: Millimeter power beaming phased array growth capability. The vertical axis is the effective radiated power, which is the power in watts multiplied by the gain of the antenna.

cial payoff. Another possible use is for powering electric propulsion systems intended for station keeping or orbital transfer. Some commercial satellites use electric thrusters for station keeping. Power beaming would allow them to operate at higher power levels without having to increase the size of the attached solar arrays.

Asteroid Imaging: This is of great scientific interest and is being pursued at lower frequencies now. Because they are potentially dangerous, we need to both locate and understand them. Using delay-Doppler imaging techniques, an array of modules can provide images of near-Earth asteroids. Assuming a required signal-to-noise-ratio of 100 for single pulse operation, approximately 375 modules could image a 10 km asteroid at a range of 0.1 AU, which is 9.3 million miles. The full array of 3,000 modules described below could perform similarly at a range of 0.48 AU, which is beyond Mars's closest approach (0.38 AU).

Recharging satellites in GEO becomes possible at about the 1,500 module level. This is again a commercial area and could provide a big payoff.

Deep Space Probe Launch: Once the system approaches large numbers of radiators it is possible to begin launching probes using the microwave radiation pressure. This is similar to the solar sail concept, but at much higher power densities on the reflecting, ultra-light vehicle. This concept has been explored by Robert L. Forward and others. Of course you have to have very low mass scientific payloads, which is compatible with the direction that NASA is already headed toward, the New Millennium spacecraft. New Millennium is the "faster, cheaper, better" lightweight

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approach that's changing how spacecraft are being built for the next era of space exploration.

The most unknown regions of the Solar System are the outer planets and beyond. Of special importance are the cometary clouds that reside in the region of the outer planets. The inner region—known as the Kuiper Belt—is beyond Neptune and the outer region—the Oort Cloud—is beyond Pluto. To explore this realm requires very high velocities, in order to have missions occur within reasonable mission time scales and funding cycles.

The effect of the higher frequency is that even with lower radiated power we can accelerate at a low acceleration to a higher terminal velocity over a longer distance. This means that the device can be designed for a few *g*'s, contemporary hardware tolerance, instead of the extreme accelerations necessary if we used lower frequencies. Launch of deep space probes with a mass of 120 grams to a velocity of 20 km/s can be achieved with 750 modules. With the full 3,000 module system, probe mass can increase to 1 kg, a more realistic mass for single sensor payloads mounted on aluminized mylar sails. If we keep the smaller mass, with the full 3,000 module system we get ~56 km/sec so the outer planets are only about a year away.

Launch to Earth Orbit: This most ambitious of missions is advanced by Leik Myrabo, following upon his work on high power laser propulsion. His system to launch into LEO using millimeter waves for most of the energy shows that not carrying your fuel along is a revolutionary approach.

For maximum performance, future engines designed for transatmospheric aerospacecraft are likely to operate with two separate propulsion methods, an air-breathing mode followed by a rocket mode. The first phase of ascent is based on the ramjet principle, a repetitive Pulsed Detonation Engine which uses a millimeter wave-supported detonation wave to heat the incoming compressed air. Thrust is developed from the exiting heated air. So the principal advantage of the air-breathing mode is that it does not rely on on board propellants. The beam-powered launch vehicle beats the aerodynamic drag losses while climbing to the top of the atmosphere, without consuming precious on-board expendables. Much current research is focused on developing a hypersonic version of the Pulsed Detonation Engine with a supersonic internal airstream as the engine working fluid, although current development doesn't use beamed power to heat the air. Figure 5 shows how the millimeter wave beam strikes the shaped metal reflector base of the craft and is focused onto the detonation region lying between two superconducting magnets. The magnets provide a field to channel to the rear the hot plasma coming from the focused detonation, giving thrust.

The second phase is a pure rocket. Above about 30 km altitude, the millimeter wave launch vehicle transitions to the rocket mode to continue its trajectory into orbit. Surface-launched rocket engines require that all the propellant be carried aboard the vehicle, a severe penalty for a

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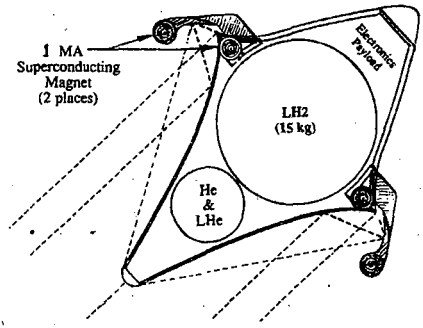

Figure 5: Millimeter wave boosted orbital vehicle, mass about 50 kg. The fuel is liquid hydrogen; helium pressurizes the fuel and provides attitude control.

spacecraft that must accelerate to a velocity of 8 km/sec to reach LEO. But the air-breathing mode brings our transatmospheric vehicle to the upper atmosphere where drag is small. The liquid hydrogen fuel is heated by the focused millimeter waves and develops thrust as it expands rearward. This boost takes about 100 seconds to reach orbital velocity.

The ground-based boost station that powers the boost vehicle, shown in Figure 6, is a 550 meter square array of 10 kw gyrotrons, radiating 30 MW total. The size is set by the requirement that the beam spot be about the cross-section of the base of the craft all the way into orbit. The array is mounted 45 degrees from the horizontal to reach the vehicle as it climbs out. The independently controlled (phased) elements have the ability to follow the craft as it is launched. Clearly this is much more complex and requires far more development than the other applications listed in the table. The megampere superconducting magnets with enough strength to handle the reaction force from the thrust is quite sporty enough by itself!

So you can launch into orbit small cargo craft every few minutes. This makes industrial transport in and out of LEO a reality at cost about two orders of magnitude less than present day and at least an order of magnitude less than rocketry can ever achieve. Myrabo estimates the 50 kg vehicle can be launched in quantity for $10/lb! Yet this station is just the long-term expansion of the modest single-element orbital debris searcher we started with.

MAKING IT HAPPEN

In today's climate it is important for technology development to be coupled to commercial applications. Some the above applications are clearly useful for the exploration of space—asteroid imaging, deep space launch. But most are potentially commercial matters. Starting with commercial orbital debris mapping, incremental development leads next to satellite power recharging in LEO. Eventually, as the space market and business confidence grows and more capital becomes available, this development plan leads to the repowering of satellites in GEO and ultimately to

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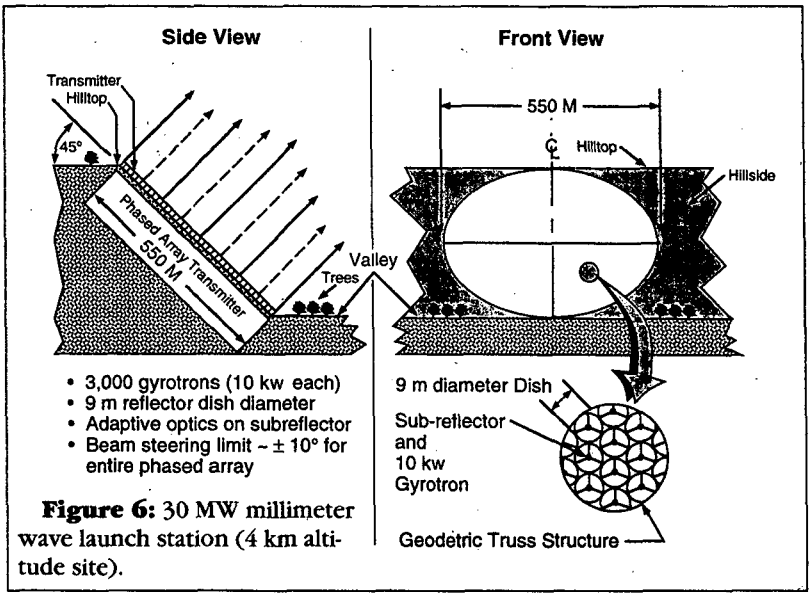

Figure 6: 30 MW millimeter wave launch station (4 km altitude site).

launch services with the full system. Investment costs are minimized because the research program leads to many applications.

Therefore, the private sector should be included from the outset in the development of power beaming for space applications. This includes the R&D phase, as it is very important to gain support from industry to maintain a long-term commercial strategy.

At the top of Figure 4 is a development timeline for the production of the power-beaming modules. In the early part of the 21st century production could be about one per week moving on to one per day in about 2015. Production of high-power microwave sources on this scale is comparable to that already being studied by DOE for the Next Linear Collider (NLC). The NLC tubes operate at about 11 GHz. Nevertheless, their average power is comparable to that needed for this array. DOE is investigating the use of automated production to make thousands of tubes at low unit cost. Their goal is $50k per tube and the same for the power supply. We can anticipate that such production methods will exist in the first decade of the 21st century.

Many accept that in the next millennium mankind will begin to develop the Solar System. While this is a common opinion, there is no clear view of how it is to be achieved and by what technology we are to make the Solar System readily accessible.

I've tried to show here that the technical means are already in hand for a space infrastructure based on power beaming. I do not pretend that the module and development path I

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have described is optimal. It will take a lot of work to decide whether looking to the use of millimeter wave beams to provide power and transportation is in fact economically practical. But I am sure that innovative approaches to doing many things with the same hardware will be needed if near-Earth space is to be industrialized in the new millennium. ■

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Dr. James Benford currently heads the High Power Microwave Division of Physics International Company and is active in high power microwave source development and advanced applications. He is co-author of the basic book in the field, *High Power Microwaves.* He's known in science fiction circles as a member of fandom since 1955 and as the twin brother of the well-known author, Gregory Benford.

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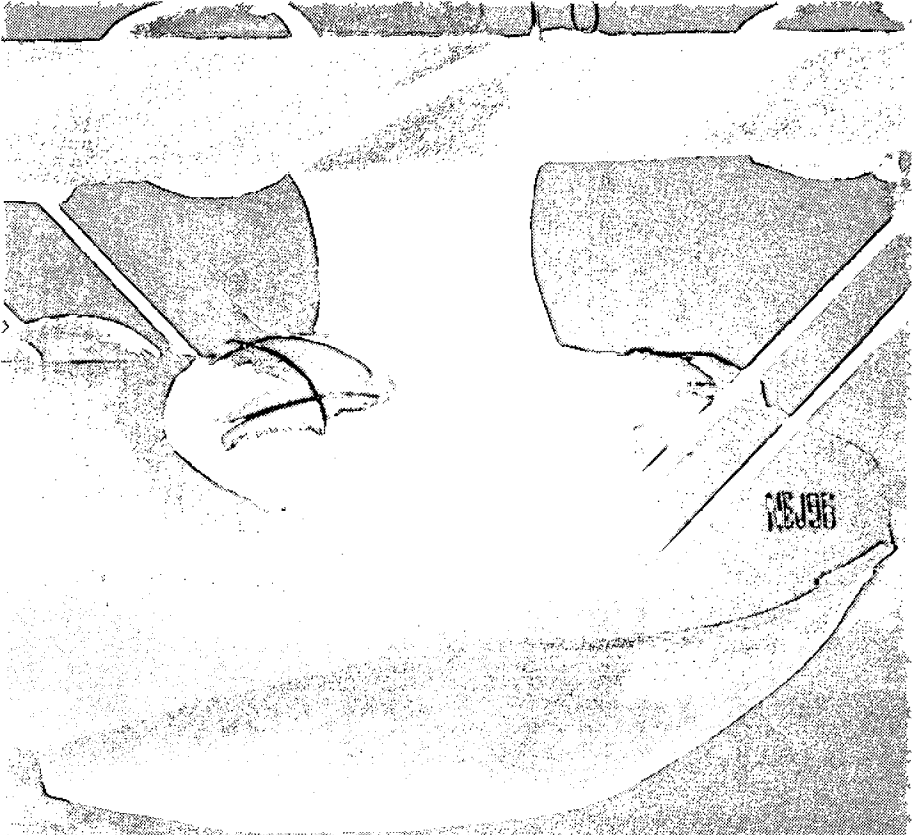

Joseph H. Delaney

THE LILY GILDERS

Real problems are seldom finished—but that's no reason not to try to solve them!

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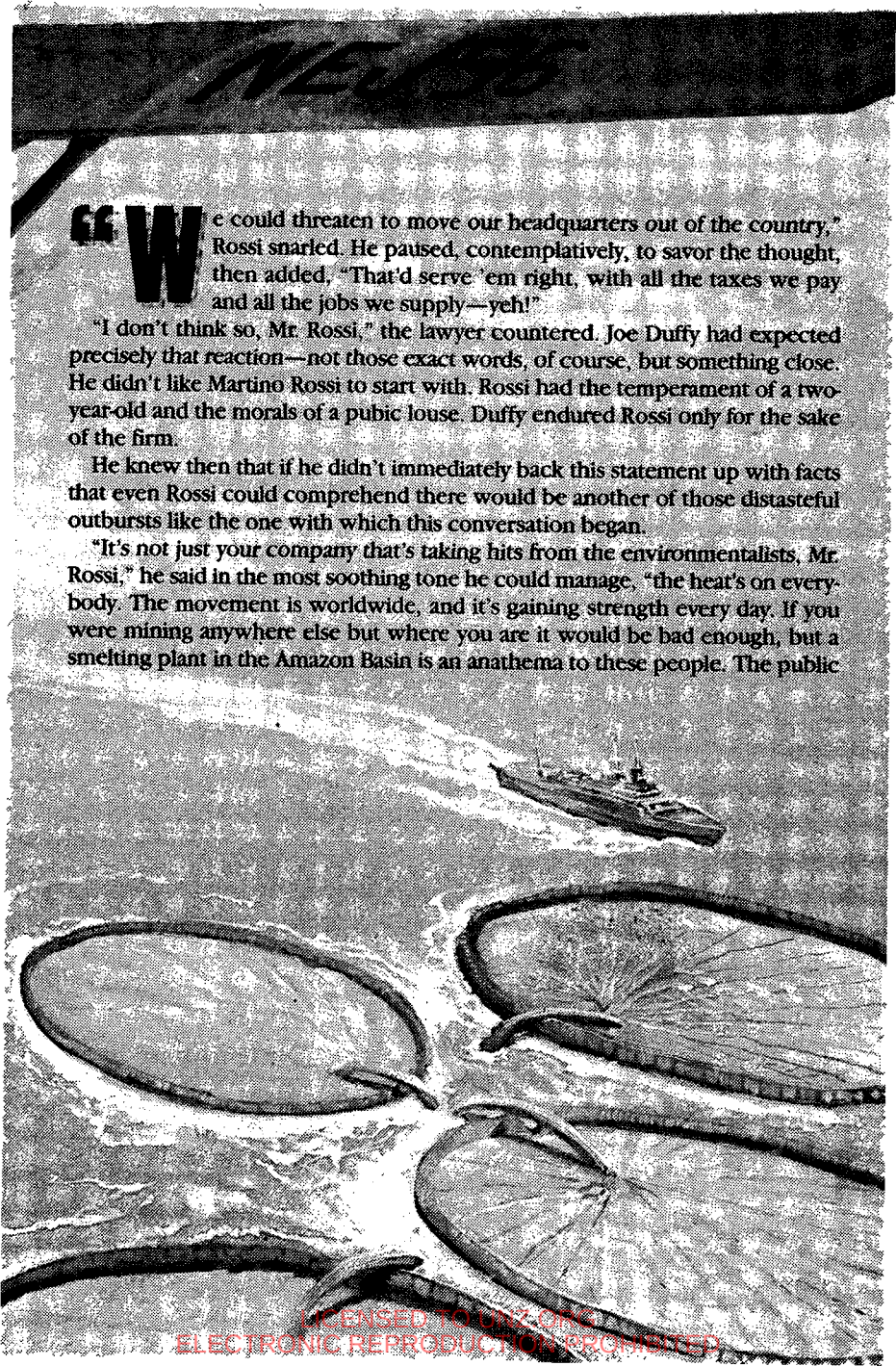

"We could threaten to move our headquarters out of the country," Rossi snarled. He paused, contemplatively, to savor the thought, then added, "That'd serve 'em right, with all the taxes we pay and all the jobs we supply—yeh!"

"I don't think so, Mr. Rossi," the lawyer countered. Joe Duffy had expected precisely that reaction—not those exact words, of course, but something close. He didn't like Martino Rossi to start with. Rossi had the temperament of a two-year-old and the morals of a pubic louse. Duffy endured Rossi only for the sake of the firm.

He knew then that if he didn't immediately back this statement up with facts that even Rossi could comprehend there would be another of those distasteful outbursts like the one with which this conversation began.

"It's not just your company that's taking hits from the environmentalists, Mr. Rossi," he said in the most soothing tone he could manage, "the heat's on everybody. The movement is worldwide, and it's gaining strength every day. If you were mining anywhere else but where you are it would be bad enough, but a smelting plant in the Amazon Basin is an anathema to these people. The public

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perceives this as a part of the destruction of the rain forest. They don't like it."

"My ore's low grade," Rossi screamed back at him. "It isn't worth hauling out. I can't make a profit unless I refine on-site. Besides, my deal was with the Brazilians. What business has the United States got interfering with that?"

"Interfering? Mr. Rossi, it was the Brazilians who sued you—"

"Yeh, but on account of that stupid treaty our fathead president just pushed through they can get at all my US assets if I lose. And you know I will. In their courts I have no chance. I say we should hit Uncle Sam back."

"How? Look, Mr. Rossi, the treaty wasn't directed just at you. It applies to everybody. Every other mining company in the basin is complying."

"It's unconstitutional," Rossi bellowed. "It takes my property away without any compensation."

"Treaties are supra-constitutional, Mr. Rossi. Even if this one wasn't, the subject matter isn't under US jurisdiction so you're stuck with whatever rights the Brazilian law gives you. Maybe you ought to talk to them."

"My people did that. They said the situation's not negotiable. It's just 'shut down until the pollution is cleaned up.' They expect me to pay for everything."

Duffy didn't even blink.

Enraged by this apparent lack of sympathy, Rossi raised his voice even louder. "I didn't do it all. Why should I pay for all of it?"

"I didn't say I thought that was fair, Mr. Rossi. That's a very good objection. You should raise it when you resume negotiations with the Brazilians." He paused, as if to gather his thoughts. He wanted desperately to end the conference, preferably in such a way that he would never have to talk to Rossi about it again. Sadly, if what he was about to suggest appealed to Rossi there would be at least one more such encounter.

"Tell you what," he said. "I'm attending a seminar on environmental law next week over in England. There'll be experts from all over the world, and people with similar problems. Some good ideas are certain to come out of it. So, don't give up just yet. Wait a little while. You might not have to shut down."

"I'm effectively shut down now. I've laid most of my miners off already." He paused, then added caustically, "but instead of leaving, the ingrates are hanging around and picking through my ore for nuggets. They're robbing me blind. It's an outrage."

Yeh, thought Duffy. How positively indecent of them not to just starve quietly. Tempted though he was, he didn't comment. He promised to get in touch with the company's scientific people after he got back, and seized the opportunity to escape.

Duffy was lucky this time. Rossi wasn't around when he called the company headquarters to announce a promising prospect for a solution to the problem in Brazil. Winston Black took his call. Winston was a mining

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engineer, of course, but he also was an avid student of many related disciplines. He kept current in all of them as a sort of profit-oriented hobby.

Black listened with keen attention. "I'm not surprised this is a Japanese development, Joe. They've got more experience with mercurial contaminants than anybody. They had a whole bay poisoned and managed to clean it up pretty good. Of course, that had a fairly orthodox solution. It started out as a dredging operation, but since that stirred up a lot of other contaminants from the bottom they had to learn how to handle those as well."

"I know, they told me. Ms. Ariko said that was a principal advantage of the biological process."

"It's hard to believe," Black mused. "You say they do it with a peptide?"

"They use a variety of peptides, depending on what they're after," Duffy answered. "The metals bind to these. The plants are then harvested, dried, and burned in an incinerator. The metals are extracted from the ash."

"No, I didn't mean I was surprised by the process, Joe. We know of lots of plants that do this. Locoweed's one of them, so is jimson weed. In concentrating these metals the plant is merely protecting itself from getting poisoned. It uses the peptide to concentrate the stuff and then tucks it out of the way. A lot of the deciduous plants put their wastes into leaves, which fall off and are replaced.

"As a side benefit, the concentration of poisons helps some plants drive away pests. Some trees put it in the bark, which is also slowly discarded and replaced. Others route it to their heartwood, which isn't living, where it remains locked up until the tree dies and decays.

"No, the part that surprises me is the figures these people claim for recovery. The proportions are far beyond anything I ever heard of before."

"Obviously," Duffy replied, "that's where the engineering work came in. Ms. Ariko showed me slides of some really giant plants, great big water lilies, the biggest I've ever seen."

"Yeh, I know, I've seen pictures of them on PBS. They're big enough for birds to walk around on."

"*That* impressed you?" Duffy was grinning. He handed Black a brochure. "Take a look at the modified strain their geneticists whipped up. This was a birthday party for Ms. Ariko, held in their lab at Yokosuka."

Black gazed at it and let out a low whistle. There were fifteen or twenty people sitting around tables on one giant green pad, and they had plenty of room to spare.

"She said that was a little one," Duffy beamed. "As big as their facilities could accommodate. It's indoor, of course, because the plant is tropical and highly sensitive to temperature, but otherwise it's tough stuff. That one is forty centimeters thick, and while most of its bulk consists of air cells it also has a thick, durable rind, strong enough to stand up to those spike heels the girls are wearing. The mature pads run up to six meters across."

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"Sounds like it might be tailor-made for us," Black quipped, with a pretended tone of optimism. "So, what's the catch?"

"I dunno that there is one," Duffy replied. "True, it's unproven on an industrial scale, but I've seen the figures on its chelating power. There's no reason to question them."

"You know how Rossi is," Black lamented. "He wants everything his own way. If he couldn't think of anything else to squawk about he'd complain about the way his feet were shaped. Did you discuss any specifics with Ms. Ariko?"

This was where Duffy started to hedge. "Uh, well, yes. As a matter of fact, I did."

"So, what's the pitch?"

Duffy laid it on him, and Black's eyes got buggier with every word. "That's pretty reasonable, I must say. In fact, it's almost suspiciously reasonable." He paused again. "Like I said, what's the catch? Has this stuff got the pest potential of kudzu or water hyacinth, maybe?"

"Nothing like that," Duffy replied, still retaining his sheepish expression. "Besides, the parent plants are native to the very area where we plan to use them.

"That should pacify the environmentalists. It'll be up to your production people to sell this to Rossi, of course—I personally would rather try to get a kindergarten class to agree on one vegetable they all like—but in the end I don't think he'll have any alternative.

"As it is, he'll have to get the process approved by the international commission and the Brazilian government. The recovery company will retain ownership of the plants and do all the harvesting. They'll also be entitled to any minerals extracted from the husks."

"He'd be crazy not to go for it," Black replied.

"Fortunately for us peons, Rossi's crazy—period. He'll do anything he thinks will make him an extra nickel. So maybe that puts us in business."

"There's a board meeting tomorrow morning," Black announced. "I've been told to report on our conference. What else did you bring me?"

"Lotsa goodies. They're out in the trunk of my car. There are several videotapes and a couple of loose-leaf notebooks full of charts and tables. None of it makes much sense to me."

"So, I spend the night cramming instead of sleeping? Thanks a lot, Joe."

"Don't mention it."

"I won't tell anybody."

"I'll be standing by to handle any of the legal details, assuming the board goes for it."

"Assuming Rossi goes for it. He *is* the board, you know."

"I'm afraid there's a little legal problem down in Brazil, Joe. It finally dawned on Rossi why he got by so cheap."

"I knew this was too good to last," Duffy replied with a sigh. "Fill me in."

"On the phone?"

Duffy was silent for a moment, then

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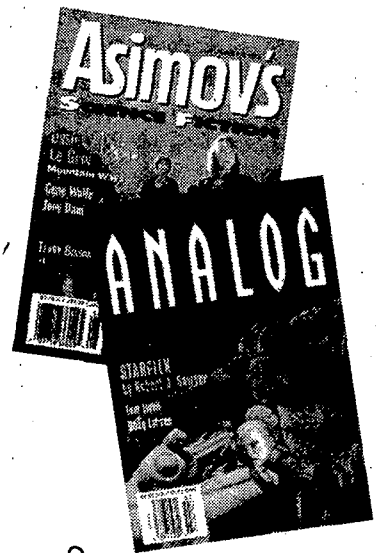

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decided Black was right. "Can you get away?"

"And come there? No, I don't think that's a good idea either. I'm already on the pan. Rossi's nothing if not paranoid. When things go wrong he looks for somebody to blame. If anybody saw me going into your building, much less your office, he'd think we were plotting against him."

Black, worried by the long silence that followed, decided to drop the other shoe right away. "Joe, the word 'malpractice' came up in the conversation a couple of times."

That got Duffy's full attention. "OK, tell you what. You've got a boat on the lake, I've got a boat on the lake. How about we do some fishing tomorrow morning—right out there in the center, where nobody can sneak up on us?"

"Sounds good. I'll be there."

Duffy was a little embarrassed at all the slapping they were doing. "We shouldn't have started quite so early. All these mosquitoes want us for breakfast."

"They're the reason the fish get up so early, Joe. The fish are looking for breakfast, too."

"Let's make this quick. What's up?"

"That clause in the contract about the Japanese controlling all the stock and doing all the processing—Rossi finally figured it out. It seems he thought his mining claim extended into the riverbed, too."

"It doesn't," Duffy said grimly. "He only got riparian rights because the beds of navigable streams are public domain."

"He claims you didn't tell him that."

"But he knew. I remember he complained about it. He wanted me to find a way to stop boats from coming through."

"Yeh. Well, he's now claiming he didn't know, and like always, money's the reason. It seems that the riverbed isn't just contaminated with mercurials, it also has a lot of gold in compound, stuff that got washed out over the eons and collected in the mud or that formed amalgams with the mercury. The separation process he's using isn't efficient enough to recover all the gold."

"I can see it coming already—greed is overpowering Rossi—but go on."

"The Japanese are obligated to remove the mercurials, of course, but there's nothing in the agreement that says they can't go into business for themselves or that they have to divvy with Rossi if they do.

"As the levels of mercury dropped the Japanese began mixing the mercury-concentrating strain with one whose peptides bind to gold. They also brought in a machine that churns up the bottom so the plants get more exposure. We can't tell for sure but it's highly likely they're taking more and purer gold out of the river than Rossi can get from the banks, and that makes Rossi very unhappy.

"Now he wants to find a way to claim they are in breach. He says he'll sue them into bankruptcy. I think that's a pipe dream but you're the one who'll have to deal with that. As

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you're well aware they've done such a good job of cleaning up the bottom that the fish downstream are edible again. Rossi can't find anything to squawk about."

"He's gonna blame me?"

"You better believe it. He says if it hadn't been for you he'd control the riverbed rights too."

"He's wrong. Nobody controls them. They're public property and anybody can do what the Japanese are doing. . . ."

"Theoretically, yes. But, how does anybody else do this when nobody else owns any of these lily pads? Besides, he also says you could have and should have protected him with a covenant not to compete—and you didn't."

Duffy pondered a moment, slapped away a few persistent female mosquitoes intent on perpetuating their species with his life's blood, and replied dourly. "That worries me a little but, if not the Japanese, somebody else would eventually have moved in on him. It's only a question of time until somebody else develops a comparable process using a different biological collector. Rossi would buy into it."

"The lilies are patented. There'd be litigation. Competition might come too late to suit Rossi. He's no spring chicken, you know, and he isn't especially well known for patience."

"He'll just have to live with whatever develops," Duffy replied with a sigh. "That's the only reasonable course."

"Reasonable, huh? Rossi's only reasonable as long as everybody else does what he wants. Joe, Rossi's a nut, and you never can tell what a nut will do."

"Even a nut can't take on the whole world and win," Duffy replied. "Look, I don't know how you're going to handle your end of it, but I intend to cover my own back. I appreciate the warning, though, and I will do my best to protect you too."

"He what?!"

"Hold it, Joe. I didn't say it was him. Nobody said it was him, but he is the logical suspect. He has a motive. He's the only possible beneficiary of the destruction of the Japanese plantation."

"Run that by me again? Where'd you hear this?"

"BBC—on the short-wave. They probably picked it up from some Brazilian wire service. The report called it a guerrilla raid but that was probably local rumor, maybe even one Rossi himself started. As far as I know there's never been any guerrilla activity anywhere near Rossi's diggings."

"If they do try to pin it on Rossi our firm will be involved, that's a certainty. Is there any way you can check it out? We need more details."

"I've got people working on it already, but communication isn't what you could call swift, especially on weekends. The so-called guerrillas supposedly hit the satellite dish first thing. We shared that with the Japanese and several other local users, including the

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provincial police FARCE—that's Rossi's pet name for them, and in this case it's well deserved. Sooner or later, though, somebody will answer."

"Get back to me when you know more, OK?"

"OK."

But he didn't. Joe heard it first from his own TV, during a newsbreak on one of the early morning talk shows. Details were sketchy, still iffy, and still repeated the guerrilla story, but by reading between the lines Duffy quickly concluded Rossi was behind it all.

Nobody, it seems, was hit anywhere near as hard as the Japanese. The damage was almost completely confined to their operation. There would be no significant effect on Rossi's mining operation.

Duffy expected to hear lots more later, since four people were reported killed or missing during the raid, whose chief objective seemed to have been the destruction of the weir that held the lilies in place against the river's current. According to the official report, the rebels had sent rafts filled with explosives into the weir.

The reporter didn't say so, but Duffy would have been willing to bet that the cleanup operation was pretty much out of business.

When Winston called a few minutes later, he confirmed this. "They got him out of the woods, Joe, and then he got rid of them. He was through using them and they were getting in his way. . . ."

"He covered himself, like always. Nobody'll ever be able to hang it on him. The last report I heard said the Brazilian police had picked up a self-confessed rebel named Bermudez. They'll probably hold him until the heat is off and then turn him loose.

"I don't think there are any rebels, I think Rossi bought somebody in the local government. It's incredibly corrupt, you know. This'll all just die a quiet death and once again the bad guys will have won because the good guys don't care enough for justice to fight for it."

"I hope you're wrong, Joe. He's my employer. If he gets mad at me I'm out of a job—but, that doesn't mean I like what I see any more than you do."

Amazon Trader was a bulk carrier, displacing fifteen thousand tons. Greek by registry, she had a cosmopolitan crew, but her owners and officers were American. Her regular run was between the Amazon ports and the Great Lakes when the St. Lawrence Seaway was open and down to the Argentine when it wasn't. She hauled grain to feed the cities of the Amazon Basin.

At the moment she was some 300 kilometers downstream of Manaus. Laden to the Plimsoll line and riding low in the water she made a mere five knots against the current.

James Wooster, the third mate, lowest in seniority, naturally drew the night watch. Unlike the open sea, where only inclement weather tormented sailors, this river had insect

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life in profusion, which never seemed to sleep. To escape this Wooster huddled in the wheelhouse with the helmsman, a Pakistani whose English was tolerable but who was an absolute failure at conversation. Wooster was almightily bored.

Until the handset on his belt squawked out his name he had been about to doze off, mesmerized by the yellow-green eye of the ship's radar and the steady hum of the sonar signal feeding out of the fathometer.

"Bridge?"

"Go ahead."

"Pittman, on the bow watch," came the reply, in the soft sing-song of Jamaican English. "Sir, I see something dead ahead I can't identify. At least I think I see something. It's real low in the water and it isn't reflecting the light from the channel markers."

Wooster glanced again at the radar screen. "Nothing on screen. What's the range?"

"Seven, maybe eight hundred meters. Too far for the spotlight. Just barely detectable through the glasses."

"Keep your eye on it, I'll get back to you."

Wooster had the engine room telephone in his other hand by then. "Reduce speed to one half," he ordered when they answered. He turned to the helmsman. "Hold us steady."

Then, taking a quick glance at the radar and sonar displays and seeing nothing obvious he pressed the talk bar on his handset to question to the lookout some more. "What does this thing look like?"

"Still closing, sir, but slower. It's beginning to look solid, less and less like an oil slick," the lookout answered. "That's what I thought it was at first, even though a slick would have reflected some light, but now it's drifted closer. I think it's solid, something floating on the surface, or maybe just underneath the surface."

"Is it on a collision course?"

"Yes, sir. Half a kilometer away now, close enough for the spotlight. I have it in the beam now. It's green, that is, they're green. There's lots of them. They cover the whole channel."

"Wait one." Wooster glanced at the table taped to the wall, searched out the proper engine speed to hold station against the current, then picked up the telephone again. "Reduce speed to fifteen revolutions."

When the loud rumbling in the ship's innards subsided and told him she no longer labored to make headway, Wooster stepped over to the console and flicked on the ship's intercom. He patched it into the command channel of the handset he carried, and turned the output down so only the helmsman would hear it.

Once again back to the lookout he said, "Keep a close watch on it. Tell me if it gets any closer. I'm on my way forward now." He gestured to the helmsman, who acknowledged with a nod.

"It seems to have stopped drifting, sir," the lookout's voice cackled as

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Wooster went out the wheelhouse door.

The handset then fell silent while Wooster moved almost at a run. Even before he reached the lookout station he could see the light playing back and forth over the mass of green circles. He had a ridiculous thought: they looked almost like lily pads, but even the giant ones farther upstream never got more than a meter or two across. These were much larger.

"Give me the light."

The lookout handed him the spotlight, together with the cloud of insects that had been attracted to it. Wooster began a careful survey of the floating mass. This seemed to occupy the entire channel and to stretch off in the distance upstream at least as far as the beam would penetrate. He held the light in one hand and studied the objects through his binoculars. "They *are* lily pads," he gasped.

"They don't seem to be getting any closer, sir."

"Then, they must be stuck on something," Wooster replied. "In this current anything that isn't anchored would be way past us by now."

Wooster pulled his handset out of his pocket, and pressed the talk bar. "Wake the captain," he said, knowing the helmsman was the only one who could hear him.

"Yes, sir," the helmsman acknowledged. "Sir, we are now getting sonar echoes. They show the channel ahead is completely obstructed. Something goes all the way from the surface to the bed of the river."

"Hold her steady," Wooster replied. "If the range closes let me know at once."

"Yes, sir."

Wooster turned the spotlight off long enough for the insects to disperse, then got an even better idea. He flicked it on again, then handed it to Pittman and stepped to the other side of the ship. He was still within conversational distance but away from the bugs.

In a few minutes Captain Ives appeared behind them. He was dressed in slippers and robe, with his usual dilapidated cap protecting his bald pate from ravaging mosquitoes.

Wooster handed him the glasses, endured a long silence and a couple of ambiguous grunts, then blurted, "How does something that big get out into the channel without anybody noticing?"

"Who knows?" Ives replied grumpily. "Who cares? These shouldn't be any problem for a vessel our size." He turned to the lookout. "Gimme your radio."

Wooster, on whom the inference was not lost, waited pensively. He would rather endure a little criticism than find himself accused of wrecking the ship.

In an instant Ives had the helmsman. "Patch me through to the engine room."

Wooster listened a little more attentively, now. He didn't think the captain meant to reverse course and he was looking forward to getting a look at these strange plants up close.

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Ives didn't disappoint him. When the engine room answered Ives ordered full steam ahead, handed the radio to Wooster, and waddled aft. He didn't even take the trouble to order Wooster not to bother him again.

The rumbling resumed as the entire ship shuddered from the strain of cargo and current on her flexing hull. This reached equilibrium about the time the bow struck the first pad.

Wooster suddenly realized the captain had run off with his glasses. He didn't need them now, of course; the naked eye, aided by the powerful searchlight, was more than good enough.

Wooster did not know what the dangling roots might do to the ship's propeller shafts and screws but the relatively blunt prow was making short work of the pads. His apprehension subsided when he saw that their edges crumpled easily when struck squarely, and the pads bowed up and cracked down the centers when forced suddenly against each other.

The ship, it seemed, was more than a match for these immense vegetables and soon had cut a swath clear through the obstruction. With the exception of the captain, whose rest had been interrupted, and an assortment of birds and small reptiles who had been roosting on the pads, no one, it seemed, had suffered from the incident. Looking back at the fantail, into the gleam of moonrise, Wooster could see a widening path of debris floating downstream.

He knew it wouldn't take long for the gossiping radio operators to spread the word around, and that soon bashing lily pads would become a competitive sport among the mariners.

In the days that followed this prophecy was fulfilled. After briefly dominating the TV news when *Amazon Trader* made port, the giant pads quickly became an endangered species, so rare that enterprising camera crews were hard put to get any footage of undamaged, mature plants getting pureed. As soon as one made it into a navigable part of any stream it was either attacked with boats or towed off as a trophy to somebody's private dock.

The company that had developed the giant strain protested, of course, claiming their property was being vandalized and stolen. But the Brazilian government took a practical posture: noninterference. If the company was truly serious, it said, it could employ the legal process Brazilian law provided to recover the pads. It knew, of course, that this would be prohibitively expensive.

So the Japanese company also adopted a practical position. It offered to reward anyone who provided evidence against people who made commercial use of the plants in violation of the patent rights they held. This discouraged large scale thievery, but domesticating feral plants remained perfectly legal in Brazil as long as they were not used for profit to extract minerals or pollutants from the water

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they grew in. This did not, of course, prevent the plants from concentrating such substances, which they naturally continued to do.

Time passed. People along the many tributaries of the Amazon got used to seeing giant lily pads, as this variety spread throughout connecting waterways. The river's immense delta was full of them, except, of course, in the channels, where they remained fair game for watercraft. In many places along shore they were tethered and grew very large. When it became apparent that they had a substantial lifespan people began building on them. In calm waters they sometimes lashed several together.

At first, they built only modest, temporary structures, generally intended to shelter fishermen for only a short time. Almost unnoticed among the other more spectacular effects, the water became cleaner and the fishing got better.

Gradually, though, both size and permanency of constructions increased. Building was limited less by the weight and bulk of structures than by the need to reserve enough clear area for photosynthesis to take place. It was soon discovered that the growth rate, and therefore the size of the plant, could be controlled by regulating the exposed area.

Inevitably, accidents occurred. For various reasons, occupied pads occasionally broke loose from their anchorages. More rarely still one might float out to sea, usually during one of the massive floodtides peculiar to the Amazon estuary. Then, the normal brackish littoral flow reverses and bores far inland, its surge energetic enough to ravage vegetation and structures along the banks for many kilometers upstream.

The crews of government patrol boats learned to anticipate calls to rescue people whose houses had gone to sea on the ebbtide. They developed a standard procedure to handle them. Speedy action was the key, since the plants withered and shrank as soon as they left fresh water. Fortunately, the enormous volume of fresh water literally diluted the sea for several hundred kilometers out, so they had some wiggle room, but this also meant most rescues occurred well out of sight of land.

Since only satellites could monitor such enormous areas the Brazilians put a special device into an expensive stationary orbit. They next advised the company that owned the patent that henceforth, until it coughed up the money to cover this expense, the government would be indifferent to infringement claims.

The company promptly declared bankruptcy, after which the Japanese government nationalized it, paid the money, and then launched a devastating campaign to recoup its investment. Among the people sued was Martino Rossi, who had been clandestinely raping the bottoms of the Amazonian tributaries far upstream.

The price of gold plummeted.

* * *

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Three more years passed before the lilies made headlines again. By then, gold had recovered some of its value. Despite industry's ferocious effort to pollute it, the Amazon became the world's cleanest river system. As silt washed off its banks into the water the particles were trapped in the gigantic root systems of the pads, causing the riverbed to shift and engulf the unproductive farmland stolen from the rain forest. Seedlings, dormant and long buried in the earth were freed. These floated into rich pockets of fertile silt, where they sprouted into a new forest.

Environmentalists breathed a sigh of relief. What reason could not stop, the irresistible power of nature did. The rape of the basin ceased with her victory.

In this interim, the pads themselves had become mundane. The news-hungry media ignored them. Only the people who lived on them, or who had tried to exploit them, maintained any interest.

Suddenly everything changed. Far away, well outside the view of the aging Brazilian satellite, within the scraggly tangle of familiar vegetation, a new shape appeared in the Sargasso Sea. It was a tiny cluster of disclike green plates, each surrounded by a high lip that easily kept its inner surface clear of the relatively feeble waves of these becalmed waters.

The Sargasso is pelagic, a wasteland devoid of reefs, a deep-water desert lacking the sustenance needed by large schools of fish. It has nothing the outside world wants badly enough to seek it out. It is trackless and untraveled, except by the aircraft that sometimes cross it while studying storms during hurricane season.

And so it was that during this particularly active season crewmen of an aircraft monitoring Hurricane Stanley, a potential class five storm with correspondingly great ability to attract attention, discovered and photographed a cluster of juvenile lily pads.

The first such photograph appeared in the *Miami Herald* the same day it was taken. Botanists, normally a fairly sedate bunch as scientists go, went ape as soon as they realized what it meant. Clearly, naturally or manmade, this was a mutation, a pad which could tolerate sea water. The seagoing variety also seemed to be a little larger than the riverine strain. The implications were stupefying.

Orthodox science was immediately polarized into two antagonistic groups. One prayed Stanley wouldn't wipe the colony out. One prayed that he would. The former argued that not only would pads dramatically increase man's living space; that they would provide cleaner air and reduce greenhouse gases. The latter argued that millions of human beings would surely be slaughtered by tropical storms in countries like Bangladesh because poverty and overcrowding would drive people unto floating slums.

The public was largely indifferent. Governments were indecisive. Congressmen from Florida and Texas tried to make political hay of the situation,

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arguing their states had the most tropical coastline and would be the most affected. But the effort was largely a failure because nobody knew what "most affected" meant.

Most everybody else in congress took the position that if what happened in the middle of the ocean was anybody's business it was the UN's business. The UN thought so too. It would have liked to add a bureau or two, but couldn't get the membership to fork over funds to do this. Too many people agreed with Timothy Zahn, who had once called the UN the biggest unlanced boil in the known Universe.

Nevertheless, when Stanley made a fickle and unlikely change of course which spared the infant stand of pads, there were those who breathed a sigh of relief for other than altruistic reasons. One of them was Martino Rossi, old, sick, and nasty as ever, still clinging to life and still a greedyguts from head to toe.

"I don't care how much it costs, Black, get me one. If you can't charter it, then buy it. If you can't buy one, steal one."

Winston Black didn't much care for the idea of going out to sea in a superannuated flying boat. The fact that Hurricane Tina was following hard on the heels of the feckless Stanley only made things worse. But there was still the reality of two kids in college, one of them doing very well at the prestigious and expensive University of Heidelberg. That thought stiffened his spine. "Yes, sir. You want a Catalina, I'll get you a Catalina."

When he had embarked on the mission, Winston Black had still retained a little hair. Not much, but enough to justify a growl at the barber if he cut too close. When he got back from the Sargasso the hair was gone, pulled out and strewn all over the cabin of the Catalina while the pilot was desperately trying to yank it off the boiling sea with the heavy lily pad aboard.

To get the thing inside they had chopped the starboard blister out with a fire ax. That was a near-fatal mistake considering Catalinas were notoriously underpowered and lumbering. The takeoff run had consumed many miles across the choppy water. Barrels of seawater sprayed through the demolished blister.

Black was grateful that the added lift of a vagrant updraft had finally saved them, and that quick thinking by the crewman who opened the bilge cocks enabled them to stay in the air.

It had been a harrowing flight but in the main Black had been successful. He was astonished at the praise Rossi gave him when he got back. Never before had he known Rossi to compliment anybody.

But Black knew better than anybody else why Rossi was being so expansive. It had to do with money. From the moment Rossi first heard of the new strain he had been in a feeding frenzy. Back in the 1920s Fritz Haber had experimented with gold extraction as a means of paying off

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the French claim for World War I reparations. Every cubic mile of seawater was thought to contain nine pounds of dissolved gold, and there was absolutely no chance Tina would miss the feral stand. Since Rossi had a specimen of the seagoing mutant, chances were good he would also possess the only one surviving the storm. But Black still had to determine what substances it could concentrate.

Black installed the pad in a tank filled with seawater heated to ideal temperature, laced with nutritious and filling plant goodies, and illuminated it with banks of powerful lights. To ensure species survival, his horticulturists carefully clipped tissue for cloning.

The acid test had to wait for nature to take its course, but when the time came, and it turned out just as Rossi hoped, Winston decided that barring some calamitous boo-boo on his part his kids would probably get to graduate. Chromatographs of the samples showed clearly that the pad's tissues were accumulating gold. The quantity was minute, of course, but the purity was unbelievable.

Even that wasn't the cap to Rossi's luck. He had the blister repaired and sent the Catalina out again as soon as weather permitted. The crew spent a week in the survey, spiraling over millions of square miles of ocean, searching unsuccessfully for fragments of pads.

Nothing turned up. To clinch it, Rossi contracted with a satellite survey company whose equipment was state-of-the-art, capable of resolving a human face from altitude in sufficient detail to identify its owner. To Rossi, legalities didn't matter so long as he had the only lilies capable of flourishing in salt water, and it looked as if he did. He knew he could depend on human greed and that the petty dictators of many small, tropical countries were for sale to the highest bidder.

Two weeks later, after the computer had reported absolutely no hits for anything remotely resembling a pad, or even a dinner-plate-sized fragment of a pad, Rossi celebrated with an office party. Twenty minutes after it started Rossi had a stroke.

They rushed him off to a hospital, where doctors determined his body would live. His malignant persona, however, was now a prisoner within his own skull, able to see, able to comprehend, but quite incapable of any but the most superficial control over his business. The ground floor of a brand-new enterprise appeared to have opened up for all the company insiders. This new enterprise would need prodigious amounts of capital, and there was only one place this could be obtained.

"Well now, Joe, I'd say that's a good start." Black had scarcely looked at the supporting figures. In his opinion, the dividend line said it all. Rossi Enterprises common was paying a third-quarter dividend of $9.80 a share. He gave out a low whistle, then thought about his own stock option agreement a moment and whistled again,

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even louder.

"Isn't it, though? But, you know, Winston, in spite of his illness Rossi still manages to poke his nose into the operation a little too much. I'll admit we've made a killing on our stock but that's all on paper, and the only way to turn it into real money is to cash out. I think we ought to do that."

"Are you nuts, Joe?"

"No," Duffy replied somewhat icily, "but Rossi is. He's got a monopoly, he's effectively cornered the gold market because he can produce it cheaper than anybody else. Worse, he's got voting control over the company, which means we can't do anything to regulate production unless he agrees. Inevitably, that means overproduction and depressed prices. When the price of gold drops so will the dividends and the value of our shares."

"Can't we get him committed or something?"

"Maybe, but even if we do there's still another joker. Rossi's not the only greedy member of the race. Consider where our installations are. I get the shakes whenever I do that."

"It was necessary, Joe, and you know why as well as I do."

Duffy nodded, as if to acknowledge that was true. Both Somalia and the People's Republic of The Solomons were police states, both were on bad terms with the United States and its allies, and both offered safe anchorages. The Somalia plantation was off the storm track and so was the one at Tulagi. Hurricanes never troubled the Coral Sea.

As a bonus, both dictators were for sale cheap—at least they had been initially—and neither country belonged to the patent convention. But, and this was the point he made to Black, "It's like paying blackmail. You never get finished and the price never ceases to rise."

"Are you saying we can't deal with that, Joe? We can. We have secretly formulated herbicides which can instantly kill the plants. Our production crews have these on hand. At a moment's notice we can shut either country down and move to others that treat us better. There's a waiting list, Joe, a long one. Greed goes on forever."

"You've got an answer for everything, haven't you, Winston? With a lot of luck you might keep it going for quite a while. I don't happen to think so. That's why I plan to get out. Considering how many people have access to the facilities, and the efforts our enemies are making to get hold of clippings I think it's only a question of time before somebody breaks our monopoly."

"We've been very careful about that, Joe. Everybody that has physical contact with the plants gets checked, every body cavity, even under the fingernails and toenails. Anybody who leaves the reservation has to spend a week in quarantine first. . . . "

"The experts tell me even a microscopic sample, even a single cell, would be enough. The company's got some powerful enemies, Winston. All the industrial nations, and especially

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the Japanese. With them it's a matter of face. Get out while you can, Winston. That's what I'm going to do."

"What do you want, Joe? Why'd you come here? Did you come to gloat? To say, 'I told you so'? OK, so you told me so, and I didn't listen, and—"

"And now you're broke, and you're out of a job. You're a pariah because you were Rossi's cat's-paw and nobody trusts you."

"What do you want, Joe?"

"I thought maybe you'd agree to talk to Ms. Ariko, Winston. She's in town. She still represents the Japanese company."

"You mean the Japanese government."

"Whatever."

"What's the point, Joe? There's nothing left of the gold business anymore. Gold's cheaper than iron these days. They're using it to plate sewer pipes. The '15 Mercedes's body is plated before the paint goes on. Pretty soon they'll be wrapping chewing gum in gold foil, and arresting people for littering the streets with it."

"There's still a way the lilies can be economically profitable, Winston. That's what she wants to talk about."

"How, Joe? How do you break the Chinese monopoly? Harvesting the plants is labor-intensive. They've got the world's cheapest labor—even India can't compete with them. It'd be bad enough if there was any chance the market would improve, but it won't. Gold's practically indestructible, and it's already reached the point where the price of new metal and recovered scrap are in competition."

"OK, so gold's finished. . . ."

"Everything's finished, Joe. What happened to gold will happen to anything we try to refine. It's too much like a free lunch, that's the trouble. When money grows on trees, it isn't worth the effort of collecting."

"It is if you can eat it and live on it, Winston. It is if you can use it to clean the air of pollutants you can't avoid generating in other necessary processes."

"I don't understand."

"Neither do I, Winston, at least not the technical stuff. But Ms. Ariko does, and she needs somebody who knows the ropes. She needs somebody who's had practical hands-on experience with the lilies."

Duffy had been standing in the doorway of Black's small room. Now, without being invited, he walked over to the chair across from where Black sat. He knew now that what had at first appeared to be an upswing mood had tumbled back again to despair. His mission would need more work, lots of it. "She needs you. She wants to offer you a job, Winston."

"After what I did?"

"Because of what you can do, Winston."

"But, I'm just a mining engineer, Joe. She must know that. I don't have the expertise she wants. There are molecular biologists who've forgotten more about the lilies than I ever knew,

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and horticulturists who—"

"Specialists, Winston, specialists. People with the narrow view. Yes, you're right, these *are* the pick and shovel guys, and they're a dime a dozen.

"But you're a rare bird, Winston. You're an unspecialist executive who may not know the details but who does know which direction to steer and how to get the most out of underlings. That's the only reason Rossi tolerated you. Rossi needed you. You made the machine go.

"The reason you did was you had the curiosity. You were intrigued by the plants. You wanted to see what would happen. That's why *you* tolerated *him*. No, Ms. Ariko and her colleagues don't care that you're just a mining engineer any more than Edison's customers cared he never finished grade school. Edison was probably the least talented chemist, the most inept physicist, and the worst mechanic in his own shop. He had the sense to hire the best help because he knew his own strength was as a theorist. His curiosity generated harebrained ideas but that alone was not enough. His long suit was the ability to drive other men to make the hardware necessary to get the ideas working. That made money for everybody."

He paused, and gazed into Black's dejected puss. The confused stare told him more persuasion was needed. He let fly. "How many Edisons have there been, Winston? Maybe more than you think. Edison made the biggest splash but what about the guy who invented the zero, or the paper clip? Does anybody even know who they were? Why'd they do it? Why did Roentgen put his hand in that X-ray stream? What possessed Luigi Galvani to electrify dead frog's legs? Why was Galileo watching that chandelier when he should have been praying?"

Duffy paused again, searching Black's face for change. He thought the man's expression was a trifle less pessimistic and he plunged on again. "Tell me, Winston, was your curiosity sated by the knowledge that gold is not real wealth?"

"No," Black answered for the first time, "I guess it wasn't. Only, I just don't feel an overwhelming urge to—"

"Winston, what's the biggest problem facing the human race today?"

"Hum, uh, well, uh, overpopulation, maybe?"

"Close. Actually, there's more than enough area to handle a hundred times our present numbers, or so the experts tell me. The trouble is, lots of it's in the wrong place—too cold, too little water, poor soil—the objections go on and on.

"But, what if—"

"What if we could extend the living space onto the continental shelves, use the resources of the sea to feed it, to house it, to supply power, fresh water. . . ."

"Like I said, Winston, the list goes on and on. And, there are lots of materials that are only trace elements in the terrestrial crust but are abundantly available from seawater. Some of

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these are uncommonly useful, too. For instance, if you had a choice of any material what would you use in your space vehicle's high-temperature components?"

"Beryllium, of course. Nothing else even comes close."

Duffy moved in for the kill. "What you really mean, Winston, is that you'd use it *if* you could get it. How much would you expect to pay for a kilogram?"

"Too much, Joe. The universal production's probably the lowest of any element, it's in the wrong part of the periodic table, not very survivable. And, the principal terrestrial ore's a semi-precious gemstone. It'd take some work, but—"

"Time was they didn't gold-plate sewer pipes."

"You're making lots more sense than I thought you would, Joe. I'm glad you came."

"Got you thinking, did I?"

"You did. At least enough to make me realize that even if we got it free it'd still be worth plenty to the customer. Besides, it's not the only rare, useful element. Tell you what, set it up, let me know when, and where, and I'll be there."

"It'll take a few days."

"That's OK. I'll use the time to think, to goose up my curiosity, get a few harebrained ideas half-baked, electrify a few frog legs, bend a little wire."

"That's the spirit, Winston. I think it'll be a golden opportunity." ■

No man is good enough to govern another man without that other's consent.

—Walter Bagehot
(Submitted by Brian C. Coad)

True eloquence consists in saying all that is necessary, and nothing but what is necessary.

—La Rochefoucauld

Research is to see what everybody else has seen and to think what nobody else has thought.

—Albert Szent-Györgyi

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Jayge Carr

THE WIDOWER'S WIFE

New technologies lead to new kinds of human relationships. To say the least . . .

Illustration by John Stevens

Men are fools. Eve probably said it first, within five minutes of meeting Adam. No. Five seconds. Oddly though, it's the guys who normally never put a foot wrong who drop the deepest into smelly doodoo when they fall.

Could he have? Been that stupefyingly stupid?

I was aaaaalmost sure. He had.

The "he," my widower, who still had to force himself to look at me, sat eating calmly in his usual place, the head of the family table.

Randy, one of the half orphans, except I couldn't stop thinking of him as my older son, shoveled food into his mouth with the singleminded devotion of a boy dragged out of Andromeda's maze just as he was about to find the treasure and rescue the princess, racking up a record score, and was impatient to get back and do so.

Link, the youngest half orphan, munched loudly while staring at the stranger across the table. As I was, more covertly.

The stranger. Could he really be . . . I just couldn't believe my supposedly intelligent widower could be that infuriatingly brain dead.

My ex-daughter Lizzie, the middle half orphan, couldn't decide whom to glare at, the stranger . . . or me. So far, she was dividing her rancor. Though I, the known evil, was getting the larger share.

I supposed that was only fair, from her point of view. After all, I killed her mother and made her father a widower.

Right. Yes. Evil, cruel me. If I had done exactly that, I wouldn't be paying a higher price.

I only wanted not to die. But maybe death would have been kinder.

Legally dead. Worse, to my family. My officially ex-family.

The stranger kept trying to look at me without looking at me. That was what had triggered my suspicions off in the first place. That knowledge, that . . . recognition. Yes. Recognition.

I knew he wasn't a reporter. Court

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(Harcourt Randolph Winthrop, my widower) would have killed him, or died trying, to protect the sanctity of his home.

Scratch reporter.

Lawyer or law official? Court knew the risks as well as I did. Scratch law anything.

We had been all over the media when it happened. But then the attention mostly died away; fifteen seconds of fame, then oblivion. Yet there was knowledge in the man's soft brown eyes. Knowledge and recognition. *Personal* recognition.

I was becoming more and more certain. Court, my beloved, foolish widower, had brought my *other* widower home to dinner. The two men ate and talked amiably. I mentally checked through the pantry's contents for rat poison.

I was keeping a weather, i.e., mother's gimlet eye, on all three children. Waiting for the inevitable. Court, the ultra conservative, had long ago insisted that we eat the old fashioned way, no portables, consoles, etc. brought to at least dinner. The dining room table itself, polished satin pseudo-oak, had no built-ins. No distractions. Leading to trouble.

Link started it. "Hey, Mr. Adamson, did you know your eyes are red?"

They were. Like someone who had wept a long time. Or who rubbed his eyes constantly, perhaps because he wanted to cry and couldn't.

"Are they?" Without thinking he reached up and confirmed my diagnosis. With a sick smile to Link, he added, "Guess that's because of my work. I spend a lot of time staring at a computer screen." A depreciating half grin. "I design computer games."

Lizzie shot him her patented, I-hate-computer-games glare, but Randy focused on him *à la instant*. "Jason's Lair?" His current favorite.

"'Fraid not, son." Harley Adamson struck me as a grown man who didn't have children around much, a little unsure how to talk to them. Now he favored Randy with a nod. "I do math and English games schools use."

He couldn't have lost their interest faster. Even today, with the computerized half-at-home, wide range of private and public education, the dread word "schools" could throw a blight on any group of children.

"I did the Heroes and Villains Concerts math series," he added, almost apologetically.

Link's face screwed up. "But I liked that one," he burst out. He looked ready to cry. "You're not supposed to like *school*."

"Did you learn from it?" Harley Adamson was suddenly professional.

Link stuck out his lower lip. "No. Dint."

Harley shook his head. "Guess I'll have to work more on it. Maybe if I have the Villains kidnap a pretty girl to sing for them, that would improve their numbers and make the Heroes lose audience. If they lost enough, their percent'd be lowered, too. Might make it difficult for them to fund the Green Team's environmental crusade, though."

"Lower percent *and* lower gates?" Link looked disgusted. "How can you do that to them!"

"Maybe if they held more concerts,

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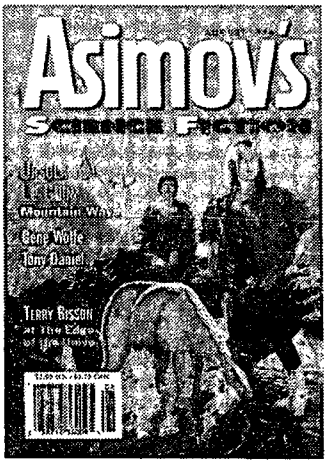

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that would make up for the loss?" Harley said, all innocence.

"Dumb." Link sniffed. "If you lower their 5 percent gate share even a percent, they have to do—" He stopped and calculated, "—25 percent more concerts to make the same take, without taking into account lower gates at each concert."

"Link, you fool," Lizzie said with a sneer. "He's made you help him with the stupid program."

Harley looked at her. "No," he said honestly. "But I wanted to see just what he'd learned about fractions and percents."

Mentally, I rolled eyes skyward. Harley was now zero for three. Link, for making him show himself a liar. Lizzie, because she was looking for a reason and embarrassing Link was better than none. Randy, for admitting he worked on "fake" games.

At which point Harley managed a home run. "I have a program I was working on. I had to . . . stop, for a while. Maybe one of you would like to play it, and tell me if it's worth finishing."

Three pairs of young eyes drilled him like lasers. "Nobody's ever played it before," Randy said slowly.

"Nope. I was just about to arrange for testing when I . . . took leave of absence. But I could use my password and download it here." A twisted grin. "Long as I don't 'work' on it, that is." Apologetic. "I'll have to wipe it when I leave, it's proprietary to the company I work for. But I could designate somebody who tried it a beta tester. If the playing goes well enough, I could register you as an official beta tester for my games. You'd have to visit the office to test, until the software is finished enough to copyright, but once it is, you could have beta copies to play with. As long as you told me all your reactions, and where the game had glitches."

"Play *new* games!" Randy almost wasn't breathing.

"Help design games." Link's eyes were wide.

"Finks," said Lizzie with a disgusted snort.

"Nobody's twisting anybody's arm, Lizzie," Court said slowly. "If the boys want to play with Mr. Adamson's new game or games, they may. If not, they won't. You have the same privilege. But part of democracy is, if one person has a right, all do."

Lizzie stuck out her lip. "Rights is what grownups have. Kids don't have rights, except the right to obey orders."

I opened my mouth, shut it again. One right I had lost, was saying anything more significant than, "Pass the salt, please," to my grieving daughter.

Harley Adamson looked at Lizzie, and chewed his lip. Then amazed us all. "You don't like computer games, because most of them are male—boy—oriented."

My adolesofeminist shrugged. "What do you care how a silly little girl feels."

Harley smiled. Though he was looking at Lizzie, it was obvious that he was seeing something (someone?) in his mind's eye. "Foolish boys can say, or believe, that because girls are different, they're inferior. Or that, what interests a girl couldn't interest them,

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or vice versa. Many men think the same way. But some of us strike it lucky. We find out that different is just that, different. Not better, not worse, just different. Or, to put it another way—" Suddenly, he was very solemn, and looking at Lizzie very hard. "I'm a man. And I know that any woman, whatever age, can be better or worse or maybe the same as me, in any of thousands of traits or skills or talents you can name. Even if you could measure every one of them, and weigh them, heavens only knows how, and average them out, you still couldn't say, She's better, or worse, or the same, as me. I'm still me. You're still you. I'm a man. You're a woman. So bloody what." He frowned. "But you're right. I've been writing my games from my male point of view. I wonder—"

"Nanni nanni, Lizzie!" Link gloated. "Now *you've* helped him."

Lizzie jumped up and threw what was left of her dinner into his face.

A not untypical evening at the widower's house ensued.

But I was sure we hadn't seen the last of "my friend, Harley Adamson."

We hadn't.

The trouble was, I liked Harley Adamson. He wasn't at all like I'd imagined my other widower to be. Yet it could have been written on the wall by a flaming hand. Harley Adamson was my other widower. The villain. The money hungry slime. The pits.

The man who sold his dying wife's body. The body a different woman now lived in. Me.

But he didn't fit that picture at all.

He kept coming around. Court encouraged him. Fool of a man. Fool both of them. To me, Court was my husband of sixteen years, the man I loved for all his virtues (and he had many) and even his flaws. The man I knew, thought I knew, even better than myself.

Something else was happening. I was attracted to Harley.

No. My *body,* that is, the body my mind was now living in, was attracted to Harley. Our chemicals meshed too well.

Why not? He was a fine man, moderately good looking, and, as he had proved the first night, as sweet inside as his outside was pleasant. (There had to be a reason beyond the obvious for the sale of his wife's body for the transplant. Because, if nothing else, Court would never have brought him if he really was a bottom feeder.)

If my mind flinched every time Court politely but firmly gave me a good night peck on the forehead before walking away from the guest room (how I was beginning to hate it) my body thrummed with pleasant anticipation around Harley.

Our marriage, Court's and mine, had lasted sixteen years, until it was legally dissolved by my "death." Before my rebirth, after the transplant, in another woman's body. I knew exactly what I was feeling. One night, when Harley left me in a very unpleasant state, I decided to Do Something.

I didn't give Court a chance to land his damn peck and slip away. I put a hand on his shoulder, and said, "We

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need to talk. Your room or mine."

Sixteen plus years. I didn't have the voice I had had twelve months ago, but he recognized, perhaps subconsciously, the under note. "No, Mary. Whatever it is can wait until tomorrow."

Between my teeth: "It can't, dammit. Either come in here, or I'll follow you to yours."

I could see my darling number-cruncher computing the odds. The king-sized bed we'd shared for so many years still lived in the master bedroom. But the guest room had a queen size, for when we had a couple for guests.

Our room held too many memories. The guest room none. "All right. I'll come in. Just to talk."

I could have killed him. Talk. That's all we had done. Since.

There was only one chair in the room, a comfortable easy chair by a small table and bookshelf. He sat gingerly, like a cat lowering itself to a hot stove. "Well, Mary. What's so important it can't wait until we're less tired?"

"Several items, Court. Let's start with your mysterious new friend Harley."

He shrugged. "His company got trashed by a computer glitch from one of my clients. I met him while straightening it out. I liked him, that's all there is to it."

Oh, Court. I know when you lie. All the normal telltales are missing, but I've always known.

I tested the waters deeper. "I don't think he's good for the children. Why don't you start meeting him for guy's nights out, instead of bringing him here."

It was a mistake.

"Why don't you like him, Mary?"

"I do like him," I protested, too quickly. "It's the children that—"

"His big advantage is, he didn't know us before. You think that's so bad?"

"Court." He was still wearing his office suit. I wanted to rip it off him. The question was, would trying to beat the starch out of him make him angry . . . or get him ready for action? We weren't legally married anymore. But sixteen years is a long time.

Not for him, apparently. Of course, he'd only known the body I now inhabited a few months. For me, I didn't feel different. You go to sleep, you wake up. So once it's anesthesia putting you to sleep. You still wake up feeling the same. Except you're in a whole new body, and legally a new person. You still feel the same about your husband, family. But *they* see a new person, a different person.

Dammit!

He stood. "If that's all, I think we consider it settled. If you object to Harley, I'll cut back on bringing him home."

I had never sat down. "It isn't just Harley, and you know it. Court, I can't stand this. Being around you and not—not." I ground my teeth. Of all things in the Universe, I didn't want to say, It isn't fair. After all, I was alive when I should have been dead. The woman whose body I now wore, the woman whose brain had been destroyed in an accident that left her body intact was really, permanently

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dead. I was alive. But talk about Tantalus. I was with my husband; and he flinched away from me. Because what he saw was a strange woman, not me. Not his wife.

"I'm sorry." And I knew he was. "But there are some things a man just can't do. Intellectually, I know you're still Mary. But I look at you, and—"

I couldn't help what I said next. "Then strip off, get on that bed, and close your eyes!"

He sputtered, somewhere between anger and amusement.

I felt hot liquid in my eyes.

"Don't cry, Mary." Suddenly his arms wrapped around me. I relaxed into that so familiar aura, body smell, firmness, everything right, so right.

Only for him, I knew, I was now wrong, so wrong.

"It'll come, in time," he said softly.

I reared back and glared. "How much time?"

He was so . . . Court. "That's my Mary. I can't know. Just—" a very wry grimace, "—not as soon as you'd like."

"She was almost ten years younger than I was. Must I wait until this body has aged to where you remember mine?"

He jerked slightly. "You know, I think that's part of it. She's so much younger, I feel like a cradle robber."

"Well, just remember, inside this fat young person is a thin old person!" She wasn't fat. Nor had I been thin. She weighed a few pounds more than I had, but she was taller.

"Oh, Mary." He slumped a little against me, gave me the first honest hug. "You sounded so—you, then."

"I am me. That's the problem."

"I know, love." He sighed. "I know. But you don't look like you."

Of course not. They had matched the body donor to me by a lot of chemical, subtle criteria. Size, features, none of that had been taken into account. The best you could say was, we were both brunettes. Big deal.

I almost had him. There we were, inches apart . . . and I lost again. I got my peck on the cheek, as he slipped out of my room.

I had trouble getting to sleep that night. Even beating the pillow, imagining it a male body, didn't help.

The next day, I banged my head, for the thousandth time since getting out of the hospital, on a damn open cabinet door in the kitchen. I'd always had the bad habit of leaving them open, unless Court or another adult taller than me was in the room.

Lizzie looked smug. "Served you right."

I rubbed my forehead, then went around slamming them all shut.

The boys were enjoying one last computer game on the kitchen table consoles before the school courses started coming in via the net.

"You shouldn't have come here. We don't want you," Lizzie added smugly.

At the moment, love her as I did, it was hard not to smack her. Something Court didn't approve of, and I had never done. Before.

Her lips turned down in a sneer. "I saw what you did, last night. I saw Daddy coming out of your room."

Twelve is a hellish age. Time merci-

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fully dulls the memories, once we reach adulthood. The last thing I needed was a daughter jealous of her father's feelings toward me. But with a throbbing head distracting me, all I could come up with was a stupid, "So what."

"You think I'm dumb. You think I don't know why you're here. You came to take Mommy's place."

"I am—" I stopped. She didn't believe. Her mother was dead. The slowly dying body she had lived in, buried. Lizzie, all of them, had attended the funeral. That was it. Period. *Finis*. Yet her mother's brain—me—had been given a new lease on life in a donated body. Body transplants were such a new medical technique, and the chances for abuse were so very huge, that congress, for once, had gotten ahead of the game. Almost as soon as the first brain transplant proposal, the first full body donor suggestion, they had passed a law.

The person who donated the body had to be legally brain dead, and after the transplant, was legally dead.

The person who accepted the body donation, who was only a brain in a new body, that person was legally dead, too.

Her children orphans, or half orphans. Her husband a widower.

Both the husbands. The man married to the brain that went into a new body. The man married to a body that got a new owner via the brain transplant.

They even ruled that as soon as she (or he, of course) was released from the hospital, that they go through a version of the protected witness routine. Another name, another city. There was even conditioning against ever coming back. Voluntarily. By oneself.

What they hadn't counted on was someone like Court, who played the information nets like his children rescued princesses and treasures. Who could trace what little was left of his wife. And bring her home. Even if she was legally dead. Even if she looked totally different.

The trouble was, I didn't feel dead. Living Inside the new body, everything seemed the same to me, until I looked in a mirror. The first thing I did when I got back, was take every mirror out except the ones in the bathrooms.

I watched Lizzie glaring at me as if looks could kill, and decided this couldn't go on.

Two days later, I *knew* that Something had to be done. Harley followed me into the kitchen, and, with a groan, grabbed me and kissed me.

The real trouble was, I liked it. A lot.

Lizzie had followed us. "Good," she said. Harley almost leaped away from me, blushing bright red. Lizzie sneered at us. "Now maybe you'll both go." She folded her arms, and watched. As though we'd march out together, that very second.

"Oh, lord." Harley didn't look happy.

I only smiled. Maybe if she told Court?

I think she did. Nonetheless, he continued to Not.

* * *

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The spit hit the rotating propellers four days after Harley kissed me. We were all in the den. Harley and the boys were "beta testing" one of his programs. From the hisses and snarls intermixed with cries of glee, I was sure all three were enjoying themselves.

Lizzie was on Court's lap. Using a portable computer, he was helping her with some subject she claimed to be having problems with. It was a put up job, but if she needed the reassurance of love from her father, then she needed it.

I was sitting at a small table, using its terminal to make payments. Muttering. "Third child tax. Idiot government. Inverse incentives."

Gaze still fixed on the screen in his lap, Court finished it. "Encouraging producers not to have kids, and paying the nonproducers for as many as they want." I could hear the smile in his voice. "You always say the same thing, Mary."

Lizzie was glaring at me, but there was an odd horror mixed in.

The doorbell went off, sweet wind chimes.

I was the only one close to unencumbered. "I'll get it."

Court frowned. "Who'd be calling at this hour?"

"A salesperson." I shrugged. "I'll get rid of them."

It wasn't a salesperson, though that was the general impression. She seemed mid- to late twenties, bland and innocuous looking, dressed in an anonymous powersuit. No one feature, from neat page boy brown hair to hazel eyes, stood out. If I turned away, I'd have difficulty describing her.

She flashed a badge. "This is official. Is Mr. Winthrop here?"

Oh, oh! I decided truth is always better, and nodded.

She took a step in, and I back pedaled. "May I speak to him?"

"The taxes are paid," I said firmly. Even if it was only authorized five minutes ago, electrons move fast.

She awarded me A Look. "This isn't about taxes. Where is Mr. Winthrop?"

I tried another line of defense. "We have company."

A shrug. "Get rid of them. This is going to take a while."

I chewed my knuckle. Then, "Shall I bring him into his home office?"

She folded the badge holder closed. Somehow, in that action, its outer edge brushed against my bare arm. "Your choice, ma'am. But your company will have a long wait."

I went into the den. "Court, there's some woman here, says she has Official business with you. You want to use the office? Harley, do you mind?"

Harley answered first. "Course not." He grinned at the boys. "Now, if I was the one who was leaving, so far ahead—"

"You're not neither," Link asserted.

Court was frowning. "I can't think which of my clients would feel it urgent enough—"

I had left the door only partly shut. Now it opened fully and the woman with the badge stood framed in the doorway. Only she wasn't holding the badge out, she was staring at its box with the glee of Arnie Jacoby when he signed that new half billion con-

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tract with the Chicago Natives. "I thought so," she was saying. "I thought so!"

She looked up, we were all staring at her. She held out the case, it had a tiny screen opposite the badge. "I took a sample from you when we were talking at the door." Her gaze skewered me like a butterfly impaled on a board. "I know who you are."

"Oh, God!" Court soared up, dumping Lizzie and the computer. Lizzie squalled, and the computer wheeeeped.

"*Dad*-dy!" Lizzie protested.

Immediately, he knelt and hugged her. "I'm sorry, honey. I was so startled, I just reacted without thinking. Are you OK?"

"I guess. Daddy?"

He hugged her desperately. "I love you, muffin."

"Too bad. This is going to make my career. You've broken the law, you and her, and I'm going to take care of you both. These kids will never see you again, not even when they're grown and gray."

All three children stared at her in horror.

I swallowed. "You can't. Court had nothing to do with it. You can do what you like to me, but he's out of the loop. It was all me."

She glared. "I don't believe you."

"You have to. That's my testimony. I broke the conditioning, and came back all by myself, I wormed my way in here. He had nothing to do with it. You can't touch him."

"Mary!" Court groaned in agony. "Don't you know what the penalty is?" To the officer. "It was me, it was all me. I dragged her back. Don't—oh, god, don't do anything to her, do it to me!"

"Court, don't you see? It's not one or the other of us, it's both of us or me! For the children's sake, Court, for the children's sake, it has to be me!" To the officer: "He said that to try to protect me. I'll swear in any court you want. It was all me."

She grinned, the snake watching Eve take that first bite. "Sorry, lady, that train won't fly. It couldn't have just been you. Impossible."

"Court, it was all me. Say it was all me!"

"Mary, I can't."

His arms tightened around Lizzie, and she squeaked, "Daddy!"

"You have to, Court. Tell her the truth. For the children's sake. It was all me."

The official merely shook her head. "I'm taking you both in. The kids can go to social services. I'm taking no chances with you two criminals. You deserve what you're going to get. Both of you." To Court. "She couldn't have done it alone. You're in it up to your neck." To both of us: "You want your modified Miranda rights? Or do you depose you're aware of them? They added recently that you can access LegalNet."

"I depose, I know my rights," I said hurriedly. The new Miranda rights took ten minutes to read, especially since the witness had to say, I acknowledge, after every bureaucratically waffled sentence.

Court grimaced. "I depose, I know my rights."

Randy swallowed. "What are you going to do with Daddy? And Aunt

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Mary?" I was grateful I was even an addition.

Even bureaucrats have some feelings. "They're . . . going to jail. I'm sorry, kiddos. For a long, long time. You won't see them, so you'd better start forgetting them."

"No!" from all three of the kids. Lizzie clenched her fists at her. "You can't take our Daddy."

"Kiddo, I'm going to take your daddy. And your—" She hesitated.

"*Aunt* Mary," I supplied grimly.

"Aunt Mary."

"You rotten mean fink!" Link soared to his feet and hurled himself at the official.

"Sonny." The woman plucked Link off and held him, legs thrashing, arms flailing. "Kid, if you were a little older, I'd arrest you, too. I'm doing my duty, and you're obstructing me. Now, you kids. Go throw your favorite videos and toothbrushes and whatever else you'll need for a few days into a bag. I'll give you five minutes." She plunked Link onto his feet.

"You can't give us orders." Lizzie, as usual.

"No." She nodded. "I can't. What I can give you is five minutes. Anything you don't have ready to go with you after that, you can just live without."

"No!" All three of the children were either wailing or shouting.

"You can't, official or not." My chest felt so tight I had to force the words out. "You can't. I said it was just me. Leave Court."

"Lady, you get high marks for trying to save him. But you can't. He's in it deep as you. You couldn't have done it alone, of course he helped."

"No." Harley unfolded himself. "He didn't help her. I did."

"Who the hell are you!"

Harley was smiling. "I just told you. The man who brought her here. The man who helped her."

"Don't be a fool, mister. Don't you know the penalty?"

Harley nodded, almost contentedly. "I know exactly what I'm doing, officer." He waved at the badge/tester and held out his hand. "Just use that gadget of yours on me. You'll see. Why I wanted her back. Why I brought her back."

"I don't understand. I—" She gasped. Then, unbelieving: "You're the other one!"

"Right." Harley glowed. "I'm the other one."

I decided to throw a monkey into the pot. "Har-ley? You can't be. Court would never have brought him to meet me."

"Right. Of course." The official nodded. "The other one wouldn't be welcomed here. Good try, whoever you are, but it won't work. I'm not letting these two off, no matter what lies you tell."

But Harley had strolled over almost casually to face her. "If you think I'm lying, why are you afraid to confirm my lies?"

"Harley? It can't be true." To the official. "Don't dare test him. He's a friend of the family, that's all, with no idea what he's risking! I told you already, it was all me, and that's final."

"Of course he's a liar," the official spat. But Harley was running his bare finger over the case, and the official glanced at the screen and flinched

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back. *"Oh, shit!"*

"Oh, *shit,*" I echoed. "Court, he isn't, you wouldn't have brought my other widower here, you wouldn't."

He looked ashamed. "Did you think I liked what was happening?"

"Court, I may kill you myself." Then I froze. Because, legally, that's what all three of us were facing. Body donation. Real brain death. Desperately, to the official: "I don't care what either of those fools says, it was all me. All me. You can't touch them if I say it was all me."

She shook her head. "You're lying, lady. I'm taking all three of you in right now." She looked at the children, and licked her lips. "You kids, I meant it. Get what you need and be ready to leave when I am."

Lizzie dived on Court. "Daddy, don't let her take you away." Randy ran into the study. Link again hurled himself, fists flailing, at the official, who by now looked frazzled.

"You can't take either of them. Not Court, not Harley. I said it was all me, and I'll swear it. You'll look a fool."

"You're not taking my daddy!" Randy had reappeared, with the small target pistol Court kept packed away in his closet. We all practiced with it. Court always said that even a young child could be educated in gun safety, and that it was ignorance and curiosity that caused so many accidents. Nonetheless, he had kept it locked except in use, until recently.

"Kiddo, you are interfering with an officer of the United States in her duties. Put the gun away, and I'll forget all about it," said Ms. Badge in a jollying tone.

"Randy." Court's voice was firm. "Put it away. We're in enough trouble as it is."

"She isn't taking you." Randy was equally firm. For a second, I saw my child as the man he would be one day.

"No. She isn't," I agreed. "Unless she wants to make a fool of herself. I said it. It was all me and only me. She won't take Court, she won't take Harley. Just me."

Court was suddenly smiling. "She won't take any of us." To his son: "It's a promise, Randy. So put it away." Curious: "Is it on safety? And if it isn't, did you load it?"

"Aw, Dad, what good is an unloaded gun? And I can't fire it when it's on safety."

"Safety, son. Now."

Randy knew that tone. I could hear the click of the safety.

"Go put it away. Unloaded." Randy looked defiant. "Don't worry, son. It's under control."

"It sure is." The official had regained her spine, once the safety clicked. "You're all coming with me."

"Of course. It's your career, after all," Court said softly. "Or more accurately, it was."

"Hey, pinpointing you three felons, that'll make me."

"Or break you. I'm going to swear it was me, and only me. That means, you'll have two false arrests on your record, if your superiors believe me."

Harley and I got it simultaneously, and grinned in relief at each other. I nodded, and he spoke. "I'm going to swear it was me and only me. So, if your superiors believe me, that's two false arrests on your record."

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"I'm going to swear it was me, and only me. If your superiors believe me, that's two false arrests on your record," I caroled.

Harley twisted the knife another turn. "I write educational games for kids. A false arrest would damage my career. I could sue for gazillions."

Court nodded. "I'm a money trail consultant. A false arrest, and my career dies, too." He smiled, and a wolf would know to run away from that smile. "I've been a money trail consultant in high places for years. Many of our friends are lawyers. Good ones. Rich ones."

I buffed my nails on my collar and gave the official, now sweating slightly, as close to a piranha smile as my younger features could produce. "I part time in installing office software. Legal's one of my specialties. If you don't happen to know any good lawyers, Harley, don't worry. We do."

The official paled. "You're all three in it," she repeated weakly.

Court took a step toward her. "I swore it was me and only me, but what happened was, they screwed her conditioning up. She came back here herself, because she couldn't help herself."

I frowned. Court had come and gotten me. But, I remembered, he had used a false name. Was he properly covered? Then I relaxed. Court, making a mistake in something that involved computer gimmicking? Never! The records showed I had come back, most voluntarily, by myself.

The official looked at me, lips trembling. "Lady?"

"I'm sorry. That's exactly it. I couldn't help myself." And was that ever the truth.

Desperate, pointing, to Harley: "He said he helped you!"

Harley shrugged. "You were going to take both of them, and throw the kids to social services. What else could I do?"

"Argh!" She threw the badge/tester on the floor and stamped on it.

"I think," I said softly, "if I'm arrested, I'll start my suit with the people who conditioned me." To the official: "But I'll include you and your superiors, don't worry we'll leave you out."

She was almost crying. "Did your conditioning really fail?"

I said, with every ounce of sincerity I could muster. "I couldn't stay away from Court. I love him. I love my children. You can arrest me, but you can't touch him. If you do, if you have our children taken away, your career will be dead. That's not a threat, it's a promise."

Her lip stuck out. "If it really was a failure of conditioning. . . ."

"I'm sorry. I see you're ambitious. You can arrest me, but I doubt much will come of it. If you add either Court or Harley, you'll regret it."

She sighed, then knelt down and picked up the little badge/tester. Looked at it. Decided. "I wiped tonight off when I stomped on it. The nerds will have to reprogram it tomorrow." Another sigh. "Good-hearted of you, lady, to come care for a stranger's children." To Harley, "Go back and play with the kids, friend of the family. Their dad isn't going anywhere, either, even if he's the slickest talking con man I ever ran into." A glare. "But

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you three better walk the straight and narrow from now on. I'll be watching." Then she about faced and stalked out of the room. In seconds, we could hear the outside door slam behind her.

"Whew!" Harley sat on the floor abruptly, let his head sag. Court leaned against a wall, head thrown back, eyes shut. I sagged against the small table I had been working at, shuddering helplessly.

"Daddy?" Lizzie still sounded scared spitless. "Daddy, what happened?"

He came away from the wall to gather her in. "It's OK, muffin. Something terrible almost happened, but it didn't and it won't."

Lizzie glared at me. "She did something."

"No, muffin. If she hadn't been the bravest woman in the world, they would have taken me away." He tilted her head up. "Do you understand? If not for Mary just now, I'd be gone. Forever."

She stuck her lip out, glared at me. But it wasn't quite the whole hearted hate glare she had produced up to this evening. So maybe there would be that at least. Lizzie had taken the first step toward accepting me.

That night I discovered another good result. Adrenaline is a funny thing. When the chemicals are raging through the body, even a rational being like Court can be helpless. He didn't give me a peck on the forehead for goodnight, and he didn't stop with a kiss.

For the first time since I had come home, I went to sleep happily sated. It had been a long time for him, too.

* * *

I planned my last rendezvous with the care of any woman cheating on her husband, even though there was nothing sexual involved. If Court ever found out . . . I didn't even want to think about it.

Chris was about five minutes late, but she'd been late before, and I only sipped my scotch on the rocks and waited patiently.

She slipped into the chair opposite me, picked up the dry white wine I'd ordered for her, and took a grateful, hearty gulp. "God, I needed that." I grinned. She still looked like an anonymous sales type. Or a gov desk jockey. Even an FBI agent.

"Rough day," I commiserated.

"Yuck." She made a face, staring into the glass. "Bureaucrats."

"You're a bureaucrat," I pointed out. Today she was wearing a blue powersuit with silver trim.

"Don't remind me." She took a slow sip. "For the next hour, I'm a human being. No more and no less."

"Aren't we all?" I muttered.

"Some of us," she said, with a sly hazel wink over the glass, "are more human than others."

"Watch your tongue, girlo. Or I won't tell you the good news. This is going to be our last meeting."

"What!"

"They've speeded him up. Release next week, instead of in another month. Nothing else changed, he just seemed to be doing well, both medically and psychologically."

"Oh, god!" She froze. Even her neat brown page boy hair seemed to be holding its breath. "You sure?"

"I trained under the best in ferret-

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ing through the nets. Can you move forward, or will you have to stick to the original schedule?"

"Yippee!" She threw up her arms, and the guy at the next table sputtered as he got showered with cold wine. "I'm sorry." She jumped up and gave him a hug, which made him sputter even more. "I'm sorry, but I'm just so happy!"

He gave her a dirty look, then had to smile. "Good luck, lady. I envy him, whoever he is."

"My husband to be." She planted a kiss on his ear, and danced back to her seat.

I rolled my gaze skyward, and let her calm down. Then, during our meal, we discussed nitty gritty. Travel arrangements. Cover up. New Identity. As I said, I trained under the best.

During dessert I told her, honestly, "I wish we could see each other again. I owe you so much."

"You owe me?" A spoonful of ripe cantaloupe trembled inches from her mouth. "You found Frank for me."

"To help myself. So you'd have a reason to do what I wanted, fool my husband. You sure you won't have problems? Frank'll look completely different."

Total scorn. "I know that. I'm ready. I know about your husband, he had trouble seeing it was still you inside the new body. But I won't. He's Frank where it counts. And we have his frozen sperm, so when we opt for kids, we'll be able to have his. Even if his real body is—" Tears dribbled out of her hazel eyes.

"Don't think it. Frank, your Frank, is still alive. He'll feel the same about you as he always did. You'll have to prove to him that it makes no difference to you what he looks like. Think of it as an accident. If he'd been in a auto wreck, and had to have surgery, he'd still be Frank."

She smiled through the tear tracks. "Just like you're still Mary. It's easier for me, since I didn't know you before. I wish we could still get together."

I toasted her with my coffee cup. "Me too. But if Court ever realizes we know each other—"

She snickered. "I don't have to ask if it worked. You look . . . happy."

"It helped with the kids, too. But if either of the guys had taken a good look at the badge—"

"And realized I worked for the Federal Air Assurance Agency, not the FBI or something." She shrugged. "They didn't though. It worked. Just like my getting Frank will work. Thanks for that. I can't thank you enough."

"Hey." I clasped her hands. "If we women won't help each other, who will?"

She grinned and winked.

After she left, I sat for a bit, sipping cooling coffee and staring at nothing. Not that all my problems were solved. The children were still hostile. There was still Harley, my chemical attraction to him, and Court, who would never approve of a *menage à trois*.

But hey, there was the future I wouldn't have had.

Life goes on.

So would I.

I called for the check, and left to get on with my life. ■

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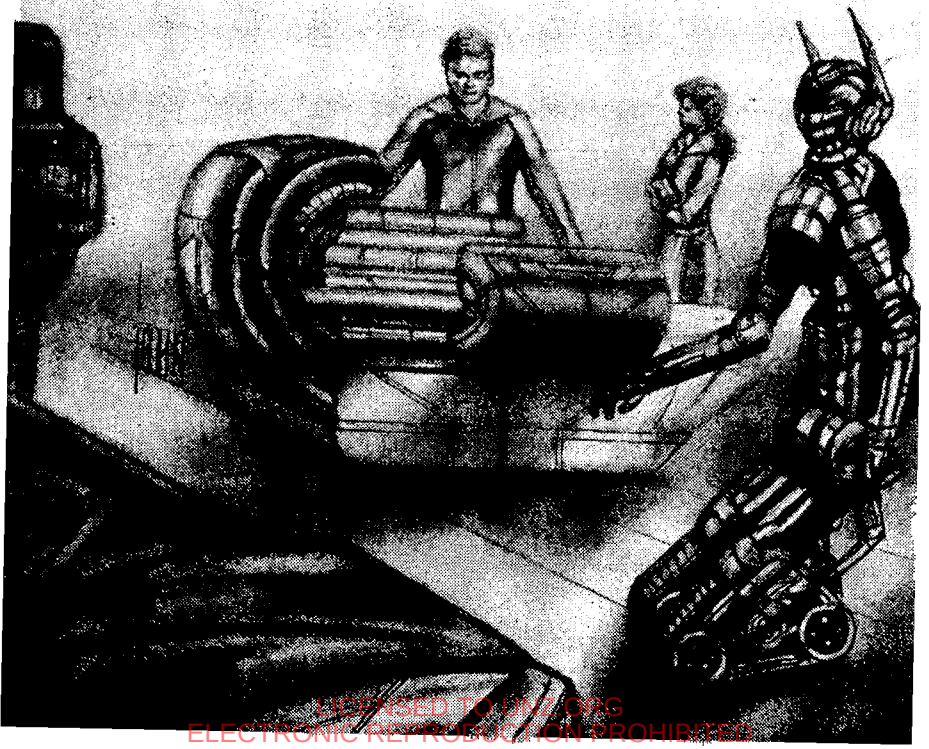
H. G. Stratmann

THE BEST IS YET TO BE

Big changes cannot be made lightly—and seldom mean exactly what you expect. . . .

Illustration by John Stevens



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"But what if I don't want to live forever?"

Schrader looked at his wife and frowned. *Agnes, don't be so difficult!*

Swiveling a little in her chair behind the long wooden desk, Dr. Renard replied calmly, "The treatment won't make you immortal. It makes you much more resistant to infections and life-threatening diseases, but you'll be just as vulnerable to accidental injuries. And, of course, it makes you younger."

"Agnes, don't you want to be twenty-five years old again?" Schrader took her wrinkled hand in his. "It'll be just like when we were first married!"

"But we won't really be younger. We'll just look that way." She glanced at the doctor. "This treatment won't really 'turn back the clock,' like she said. We won't really be newlyweds again, with our whole marriage still in front of us. It'll just seem that way. We'll still be in our seventies, retired, with our family already raised and gone! What will we really have to look forward to?"

Before Schrader could think of an answer Renard spoke again. "Mrs. Schrader, I can tell you how the rejuvenation treatment will affect your bodies. I can't, however, tell you how it will affect your lives as a whole, for better or worse. Only you can decide whether having it is the right thing for you. But I will try to give you all the medical information you and your husband need to make the best decision you can. Now, with your permission, I'd like to go over the results of your tests." She cleared her throat. "Display file Schrader, Thomas J."

The holoscreen on the nearby wall flashed to life. The doctor nodded approvingly at the text and complicated multicolored diagrams that appeared and disappeared at her command. Schrader winced, remembering what those dozens of invariably smiling, pleasant, white-coated people at the medical center had done to Agnes and him over the past month. It seemed like every square centimeter of his body—both outside *and* inside—had been poked, prodded, and scanned. Not content with draining what seemed like a couple liters of blood a few cc's at a time, they'd also requested samples of every other kind of bodily fluid too. He'd thought that, at his age, nothing could embarrass him anymore. But when that perky nurse had handed him the little cup and graphically suggested several ways to obtain the required specimen, he'd blushed. Her patience in waiting over an hour and cheery "That's all right, a few drops is all we need," only made him feel worse.

The doctor said, "I'm happy to say, Mr. Schrader, that you're in remarkably good shape for a man of your age. Your profile shows just the usual 'wear and tear' problems. Mild atherosclerosis. Some diverticula and polyps in the colon. A small focus of cancer in your prostate."

Schrader blinked. *Cancer?*

Renard continued, "Nothing out of the ordinary. Most important, the tests we made of your cognitive functions and psychological status showed no significant impairments. You meet all the physical and mental require-

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ments for the treatment."

Then she said, "Access file Schrader, Agnes M." The doctor frowned as a new display appeared. "As for you, Mrs. Schrader, your physical condition is also well within acceptable range for the treatment. However, your psychological tests showed a moderate level of depression, and we also found evidence of mild Alzheimer's disease."

She paused. "That's the bad news. The good news is that the depression can be treated very easily and, as long as it's dealt with relatively soon, we can reverse the Alzheimer's, too."

Alzheimer's. Schrader looked at his wife, seeing how she would react. The expression on her face was completely blank. Then he said to the doctor, "So you think the treatment will work?"

"Yes. The overall success rate is nearly 100 percent."

"And it won't hurt?"

The doctor laughed. "Compared to what you've been through already with the profiling tests, the treatment itself will seem like nothing. Remember when both of you came in last year to receive those medicines for your teeth and eyes? We'll give you these new ones the same way."

Reflexively Schrader ran his tongue over his newly re-grown teeth. He was still getting used to not needing glasses anymore. Then he said, "And it's safe?"

"To a very high degree. After the treatment, you'll be monitored for any signs of rare problems, like uncontrolled cell growth. In my personal experience, the only problems I've seen have been relatively minor, and temporary."

Renard leaned back in her chair. "The effects of the treatment are, in a way, very straightforward. Think of the body as a very complicated machine. Basic ideas about how the different parts of the body work and the cells they're made of have been known for hundreds of years. It was only in the 1900s, however, that we really began to identify and understand the different chemicals the body produces, and how they affect things like aging. Then, after a map of the human body's genetic structure was finally completed early in this century, what we know about those chemicals and the genes that produce them has increased astronomically."

She smiled wryly. "My grandmother was a doctor around the turn of the century. Back then she was a 'specialist' in heart disease—a field of medicine that, at the time, was considered very 'high-tech' and prestigious. Now, looking back at what they knew and could do then, it's almost like they were using leeches and magic potions."

Schrader smiled back. "I read that the treatment is sort of like renovating an old house."

"It's a little more complicated than that, but that's the general idea. After we become adults, our bodies start to deteriorate. Cells in certain important organs, like the brain and heart, can no longer divide, so if they're destroyed the body can't replace them. As the years go by, the damage from infections, environmental hazards like radiation, poisons the body itself produces, and general 'wear and tear'

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keep adding up. Meanwhile, the body is losing its ability to resist and repair all this damage. Over time, it also starts producing cells that don't act the way they 'should.' The bad effects *that* problem produces range from making your hair turn gray, to getting cancer.

"The so-called 'smart molecules' we use are programmed to either turn certain genes back on or change the way they're working, so the body can repair and rejuvenate itself from the basic DNA and protein level on up. Once they're done, it is sort of like having a 'new house' again. You'll just need to have booster treatments every five years or so to keep it 'renovated.'"

Schrader turned toward his wife. "Agnes, don't you think we should—"

"It's not right!" Agnes glared angrily at him, then at the doctor. "What you want to do isn't natural! We've lived our lives, we've already done all the things that were important to us! What would we do with all those extra years, except do the same things all over again? Have the same problems, the same heartaches we've had before? They were hard enough to bear the first time. I don't want to have to go through them again!"

"But Agnes—"

"No, Tom! There's a reason God meant us to live only so long. We struggled and worked hard all those years; we've done the best we could in this life, and now we've earned our rest. We should be satisfied with whatever time we have left on this world and then, when it's our time, go on to our eternal rest."

Schrader looked pleadingly at the doctor for help. The latter shrugged her shoulders. "As I said before, I can't tell you whether having the treatment is the best decision for you. Think about it. Talk about it. If you decide to go ahead, or if you just want to discuss it with me again, please make an appointment to see me."

She paused. "One last thing. I said before that the treatment renews or regenerates all the tissues and organs in the body. It makes them function as well or better than when you were in your twenties. But there is one organ that's a bit of an exception. Whether you believe a 'soul' works through it or not, you need a healthy, intact brain to be the person you are. If the parts that deal with your memories, what you've learned and experienced in your life—the ones involved with your personality, and the individual way you think—are destroyed, all those things are wiped out, too. Oh, we can still make those lost brain cells grow back—but all the information they stored, all the connections between them that made you a unique individual, will still be gone forever."

The doctor looked intently at Agnes. "Wait too long before you have the treatment, and your Alzheimer's will progress past the point where we can prevent that from happening." She shrugged. "There's no point in renovating a house if the only person who can ever live there is never coming back."

They had a bitter argument about it when they got home. Late that night Schrader did something he hadn't done in years. Making sure Agnes saw

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what he was doing, he took some blankets and a pillow from their bedroom and arranged them on the downstairs couch. After a while, when she didn't come down, he quietly went upstairs. The light was off in their bedroom, but he could hear her in there, softly whispering the rosary. Sighing, he went back down to the couch. When she did that, he knew from long experience that she was too mad to make up that night.

After a few days of hostile silence, they starting speaking to each other again—but only when it was really necessary. Over the next few weeks Agnes went out often. "Shopping," she said, although all he saw her bring home from those many trips was a single pair of gloves. Or, "Out with the girls." Schrader wondered which "girls" she was referring to. Over the past year or two, all the women in her usual crowd had either gone into nursing homes, died—or had the rejuvenation treatment. He knew it'd been hard on Agnes when Betty and Sally, her closest friends, had seemed to shun her after they'd had the treatment. Apparently, they didn't want to hang around with "old" people anymore.

He spent much of his time on the Nets, trying to get the latest information on the rejuvenation treatment. Despite all he'd read about it over the past few years, the biology behind it was still mysterious to him. Nearly all the articles and reports he reviewed about how it worked were either too simplistic or too technical, with little in-between.

But the political controversy still raging over this new power to make the old "young" again was much easier for him to follow. It had quickly become a major, emotionally-charged issue, sharply dividing society into hostile "Pro-Nature" and "Pro-Life" camps. Some small, fringe groups opposed it strictly on religious grounds, or from a general fear of "Frankenstein" science. But mostly, which group you were in depended on how old you were. "Truly" young people, those in their twenties and thirties, saw themselves competing for jobs with rejuvenated rivals having much more experience and seniority. And any inheritance they might be expecting from their older relatives would also be postponed indefinitely. On the other hand, those in their forties and above, much more mindful of their own mortality, were almost uniformly for the treatment.

Dr. Renard had said that the first tests of the treatment in people had been done about five years ago. However, it hadn't become a political issue until some months before the last election. The story was that the President's press secretary had read a supermarket tabloid ("FOUNTAIN OF YOUTH DISCOVERED ON THE MOON! ALIENS GIVE DOCTORS MEDICINE THAT CAN MAKE YOU LIVE FOREVER!") and, after getting more information from somewhat more reliable sources, had thought it would make a good campaign issue. When the rest of the media latched onto the story, every candidate hoping to remain in or go to Washington had to give their position on it.

After the election, the new Congress and President had quickly

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passed legislation to regulate use of the treatment. Despite all the overblown rhetoric about "the Constitutional right of every American to a full and youthful life," Schrader was sure the real reasons why rejuvenation was now officially sanctioned were more mundane. On average, middle-aged and senior citizens were wealthier than younger voters, and had contributed generously to the campaigns of those candidates favoring it. Also, the average age of a congressperson was fifty-five—and the most powerful incumbents had just had the treatment themselves.

To placate younger voters, Congress did decree that no one could receive the treatment unless they were at least seventy-five years old. That was supposed to lessen competition from their elders, by making it more likely that the latter would stay retired and not re-enter the work force, or die of some age-related infirmity or accident before they qualified for rejuvenation. The loophole was that any doctor could approve a "Certificate of Need" if, in their opinion, there was a valid medical reason for someone to receive the treatment at an earlier age. Just how easy it was to obtain one of those certificates was shown by the disproportionate number of middle-aged holo stars, athletes, and politicians who were suddenly looking like youngsters again.

And, despite outraged protests by the science groups and AMA, further research using genetic engineering to "improve" humans was effectively banned. The polls said that, like the "Pro-Nature" crowd, even most people favoring the rejuvenation treatment were worried that a scientifically-created "Master Race" might one day take over the world. As long as it only restored what God or Nature "intended" a person to be, it was all right. But, except for some irresistible cosmetic improvements, like adding or subtracting fat from certain areas of the body, "unnatural" enhancements were forbidden.

Of course, few politicians or anybody else talked about what kind of long-term effect the treatment would have on the world's population. After the great pandemics and wars that ravaged so much of the world early in the century, and extensive (if still often fiercely resisted) use of safer and more effective contraception, a tenuous Malthusian balance had finally been reached. The last several years, in fact, had actually seen a net decrease in the number of people on Earth. Maybe, as good as the rejuvenation treatment might be for individuals, in a few generations it might lead to disaster for the planet. But, as usual, few politicians thought further than the next election.

As for himself, whatever the future held on that point was beyond his control. Whatever happened, whether or not two more people had the treatment wouldn't make a difference.

When he'd turned seventy-five early last year, Schrader hadn't given any thought to having the treatment immediately. Until Agnes qualified too, there was no point in doing it. He hadn't even bothered to talk to her about it until several months ago, right after her birthday.

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He'd been surprised at her reaction. She'd made it perfectly clear that she wasn't going to have it. Every time he'd brought it up again, it was either "I don't want to talk about it!" or, if he persisted, it led to shouting matches and bad feelings that made life nearly unbearable for the next few days.

The worst part was, she wouldn't tell him why she was so much against it. All his sweet talk, shouting, and threats pried out of her was a few vague protests that it was "unnatural." Then, when they were making up days after a particularly bad argument, she'd finally responded to his misty-eyed pleas and agreed to see the doctor with him. She hadn't said more than a dozen words during that first appointment, just shrugged her shoulders apathetically and said "I don't mind," when asked to come back later for tests.

And now, after all that, it was clear to him that she'd never had any intention of going through with the treatment. All she'd been doing was leading him on, making him think she'd changed her mind, just to avoid more arguments.

Then, one Sunday evening several weeks after their last appointment with the doctor, he was sitting in his old recliner in the living room reading a book. Retirement had finally given him time to catch up on things he'd had to put off when he was working, and especially when the kids were growing up. Now he actually had time to watch the holoscreen that formed most of one wall of the room, searching the Nets for the latest documentaries and news. Even, when he just needed to relax, a play or concert.

Often, though, he just liked to reread favorite, old-fashioned printed books from his personal library. That evening he was curled up with Volume 3 of *The History of the Decline and Fall of the Roman Empire*. On the 'screen he'd found a performance by the Vienna String Quartet of Beethoven's Quartet in F major, Opus 135, that was just beginning. With the music playing softly in the background, he became more and more absorbed in the book's depressing story of decay and defeat.

Agnes walked into the room and sat on the nearby couch. Reading his book only a little now, mostly he watched her out of the corner of his eye. Then she said, "Access wedding file."

The string quartet players shrunk into a tiny square in the right upper corner of the holoscreen, and Beethoven's music faded away. Instead the 'screen was filled with sights and sounds from almost fifty years ago. From a technical standpoint, the two-dimensional "video" was jarringly primitive. Still pretending to be reading his book, he looked up just enough to watch two very young, very naïve people saying their vows in the large ornate church.

Take this ring as a sign of my love and fidelity. . . .

Memories flooded back to him. Memories of a shy, smiling young woman with dark curly hair he'd been introduced to at a church-sponsored "singles" party. Of an incredibly awkward, socially inept boy asking her in

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a stuttering voice if she'd like to go out to lunch after Mass that Sunday. And maybe go to the planetarium afterwards? (*The planetarium? Damn, Schrader, you really knew how to be romantic!*)

From the very beginning their courtship seemed so perfect, so—right. He didn't need a video to remind him of their first kiss, the way she'd felt in his arms. With both of them trying to juggle their class schedules and work, there hadn't been nearly enough time to spend with each other. But it was enough that, a year later, when he'd gotten down on one knee and asked her in that same stuttering voice if she would marry him, she'd said, "Yes." Naturally, the ring he'd bought was too small, and it had taken the jeweler several weeks to get it right. But when it finally did slip on her finger, they'd both cried.

Agnes spoke again. "Reception."

The scene on the 'screen changed. Now a young bride dressed all in white pulled her new husband to the dance floor while a polka band (*her* idea, certainly not his!) played a lively tune. The camera panned the room, revealing smiling, impossibly young versions of their closest friends and relatives. Her grandfather, his grandmother. Her brother, his two sisters. Both sets of parents. All gone now. Unless there really was some kind of life after death, he would never see them again.

As the groom on the video removed the garter from his blushing wife's leg, Schrader tried to crowd out those memories with happier ones. They had both been virgins on their wedding night. It had taken them what seemed like an inordinately long time to figure out the exact technical details but, eventually, their persistence paid off. He'd always thought that, for Agnes, it was mainly a result of her very conservative religious background. Although his was similar, for him the main reason was different. Maybe it was from watching too many romantic early twentieth-century movies, or reading too many historical novels like *Ivanhoe* in his early teens. Whatever the reason, while attending his all-boys high school he'd dedicated himself to the "ideal" of loving, of sharing the most intimate experiences with only one woman in his lifetime.

Of course, during his undergraduate years in college, he found out how unrealistic that was. His loneliness and puerile romanticism had produced several intense but one-sided infatuations that, even after all these decades, still hurt to remember. Maybe, if any of those women had returned his passions only a little more, things might have been different. It sure as hell hadn't been easy fighting those raging hormones. He hated to think how many liters of water he'd wasted taking cold showers. But, thinking back to that one night so long ago and all that came after, it had been worth it.

"First anniversary." It was a scene in their cramped apartment. Agnes, in a thick, purely functional nightgown, laughing "That camera better not be on!" They'd worked hard those first few years—he to get his Ph.D., while

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she with her new Masters had found a job teaching English Literature at a local high school to support them. They still hadn't had much time for each other. And when they did, they often wasted it arguing over money, in-laws, and so many things that seemed so important then, but so unimportant now.

"Fourth anniversary." Their new condominium. A new job for him, teaching history at the college. More strains on their marriage. Many nights on the couch.

"Seventh anniversary." Not a happy one either. They were both worried about their upcoming visit to the fertility specialist.

"Eighth anniversary." Agnes, smiling brightly for the camera, her abdomen bulging out so far she seemed ready to topple over.

"Ninth anniversary." Agnes, running after their son as he crawled rapidly across the floor like a speeding rocket.

"Twelfth anniversary." Their first house. The picture was jittery, and the 3-D effect from the new holocamera kept blinking on and off. But, as Agnes valiantly tried to feed the new baby his strained carrots, the recording was good enough to preserve for posterity their older boy's historic words, "Mommy, I just pooped in my pants!"

"Fifteenth anniversary." *No, Agnes, not that one!* The two boys were fighting over a toy spaceship while Agnes gently rocked the new baby. The bottom of their younger son's pants was visibly wet. They had argued bitterly about whether they should have a third child. She'd said that, at forty, she was getting too old, and the boys kept her busy enough. But, seeing how hurt and disappointed he'd acted, she'd finally given in.

Little Emily Marie was born with Down's syndrome. A few months ago, he'd learned on the Net that there was now a medicine women could take to prevent it from happening. But it was discovered far too late to help their daughter.

After the first shock, and recriminations, Agnes had finally seemed to bond to her. If you didn't look too closely, she almost looked like a "normal" baby. Any special education or needs she would have were still years away.

But they'd never had to worry about those things. Three months later, just before her first birthday, they'd found her in her crib one morning, dead. After all these years, he could still remember what it felt like to hold his precious baby girl in his arms.

As Agnes murmured softly, more scenes from their lives flashed briefly on the screen. Birthdays and Christmases. Their two boys, in grade school, high school, then college and beyond. Occasionally it was Agnes holding the camera, and him in the picture. He saw himself and Agnes changing, aging, as the years went by—less and less hair on his head, more and more padding around her middle. Growing old together.

He hadn't bothered to do much recording over the last ten years. Mainly just when they'd gone on a cruise or other trip after they had retired. Agnes never smiled in any of

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those recordings. Just the ones when the boys came back home to visit—something neither had done in over a year. Maybe, if their sons had taken a different path, these last years would have been happier for Agnes. Maybe, if there had been grandchildren for her to fuss over and enjoy, her will to live might be stronger.

But their boys had the right to chose the kind of lives they wanted to lead. And even if those lives didn't include marriage and children, they were doing something just as important and worthwhile—maybe more so. Even if Agnes had wanted their sons to grow up and be nice, sensible, stay-at-home college professors like their father, he was proud of them. He'd only managed to teach history. They were making it. Hell, when they were just old enough to talk he'd playfully planted the idea in their little brains himself. How could he have known that, when they got older, they would take it so seriously?

"Stop personal file."

The image of the Vienna String Quartet expanded again to fill the whole 'screen. Dimly he noted that they were playing the F major quartet's final movement. Out of the corner of his eye he saw Agnes sitting on the couch, looking at him. Although she didn't say anything, he could hear what she was thinking. *We've had a long and full life together. Happiness, and heartaches. It's time to put our affairs in order, and go gently into that good night.*

It sounded so convincing. Now it was his own voice saying, *You've loved a wonderful woman. You've been a husband, and a father. You had a reasonably good career. Most of the dreams you had when you were young finally did come true. Why risk more pain and failure trying to achieve the unfulfilled ones you still have? Be content with what you've already learned and done.*

Suddenly he felt very old, and weary. The full weight of all those years—the regrets, disappointments, and tragedies—seemed almost too great to bear. Maybe Agnes was right. Maybe, after all those years of struggle, it was time to just—rest.

And then he saw something in the night sky, outside the picture window behind the couch. The pale Moon, riding low in the heavens. If he looked carefully, he could even make out Mare Tranquillitatis. He remembered all the clear nights he'd taken the Schmidt-Cassegrain in the garage out to look at it. And, a much smaller, more elusive target.

He shook himself violently. *Damn it, there is more to live for!* No, it wasn't a question anymore of gracefully accepting the inevitable. Now, "letting Nature take its course" because Life had become too difficult or challenging was just plain laziness. It was stupid. Worst of all, it was cowardice!

Then he shouted at the 'screen, "Access personal file, 2044!" Quickly he scanned through the recordings month by month until he found the one he was looking for.

It showed a room in the nursing home where they finally had to put Agnes's mother. Their teenage boys, uncomfortable in their suits, fidgeted nervously in the corner. Agnes gently

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encouraged the person in the bed to look at the camera.

The white-haired woman's body was shriveled and contracted, almost like a cockroach. Her dull eyes roamed vacantly. Low guttural noises issued from her mouth, and drool trickled out of its corners onto her chin. A thin tube snaked into her nose, its end secured to her withered cheek by a few strips of tape. Once, not too long before, she'd been a jolly, portly woman who'd enjoyed making delicious apple pies for her son-in-law and grandsons. Now, she had metamorphosed into—someone, or something else.

He'd wondered at the time why Agnes had wanted him to record that last visit with her mother. But, he realized later, as much as age and senility had changed her parent, it was still better than no remembrance at all. To a stranger, there was only an empty shell of a person on the bed. But to Agnes, it was still her mother.

He shouted at Agnes, "Look at it! Don't close your eyes, look at it! Remember how the doctor said that if you don't get the treatment, soon you're going to get Alzheimer's, too? Is this how you want to end up in a few years?"

Seeing his wife's eyes turn moist, his resolve nearly failed him. He almost went over to the couch and hugged her. But, he told himself, just like when the boys were growing up, if you really care about someone, sometimes you have to practice "tough love."

The recording ended. Once again the four musicians filled the 'screen, playing the concluding measures of Beethoven's final string quartet.

Agnes dabbed at her tears with the sleeve of her blouse. "Do we have to do it, Tom? Must it be that way?"

"Yes, it must be!"

With a last few chords the quartet ended—and filled the room with silence.

"How are you feeling?"

Schrader squirmed uncomfortably on the bed. "Fine."

Dr. Renard stared for a moment at the flashing numbers and graphs on the monitor suspended from the ceiling near his head, and smiled. "Everything looks good." Then she turned to Agnes, who was lying on the bed next to his. "And how are you feeling?"

Agnes shrugged her shoulders, and said nothing.

Schrader glanced down at the tape covering the inner crease of his arm and the clear tube that led out of it. "How much longer will it be, doctor?"

"Another hour or so. You both have only two more bags of fluid to infuse, then all the medicines will be in your systems."

He looked up at the latest small plastic bag they'd hung from the pole next to his bed. Before hooking it up, the last nurse had joked, "Another drink from the Fountain of Youth." The fluid in the bag was bright yellow. He'd almost told the nurse, "Looks like somebody took a wizz in the fountain," but stopped himself. *Stuff must be working. My sense of humor is turning sophomoric.*

The doctor continued, "When you're finished, a nurse will give you

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instructions on the diet you should follow, and the pills you need to take. We'll have you come back to the hospital in a few days for some blood tests and scans. I'll see you in my office in a week to go over the results with you."

"Are there any side-effects we should look for?"

"Excellent question. Actually, this soon, you shouldn't have any. Later, there are a few you should look for." The doctor lowered her voice. "Your wife is getting several medications you aren't. One of them is designed to reverse the early stages of Alzheimer's. Because of the particular brain cells it regenerates, sometimes it can cause temporary problems with memory and behavior."

Schrader stared at her. "What kinds of problems?"

The doctor glanced knowingly at Agnes, who didn't seem to be listening to the conversation, then back at him. "In most people, they're barely noticeable. And they don't occur for months after the treatment. I'll go over them with you later, during an office visit."

Noticing the worried look on his face, she smiled at him. "Don't worry! None of the patients I've worked with have had any major problems with the treatment. I'm sure you and your wife won't have any either."

Then, to his surprise, she winked at him. "I can even speak about the benefits of the treatment from personal experience. Try to guess how old I am."

For the first time Schrader looked beyond the doctor's starched white lab coat at the trim curvaceous figure and shapely legs beneath it. She had beautiful blonde shoulder-length hair, and green eyes that twinkled when she smiled.

Then it hit him. Could she have had— No, it couldn't be! No way could she really be as old as him!

"Uh—thirty?"

The doctor's full pouty lips smiled again. "Thanks for underestimating by two years. But you should see my grandmother! Now she makes me look like an old hag!"

Afterwards, Agnes was even more quiet than usual. In fact, what few sentences she spoke to him over the next month rarely had more than three or four words. Though they stayed in their same old routines, like grocery shopping on Saturday and church on Sunday, an invisible wall seemed to divide them. He wanted to reach out, hold her, comfort her—but she wouldn't let him.

And she never talked to the doctor when they went for their appointments. At the last one, Dr. Renard had said, "Everything's right on track. Your tests are looking fine."

"But, to be honest, I still can't say I feel any different. Or look any younger. Do I, Agnes?"

Agnes shrugged.

The doctor said, "So far, all the changes in your bodies have been on the inside. They've been 'invisible'—nothing you can see, or feel. But the tests we've done show they have happened. Hormone levels returning to 'young' levels. Your bodies' resistance to infection and cancer—boosted far

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beyond what it was even fifty years ago. All your organs and body tissues—regenerated, or beginning to regenerate. Now, it's just a matter of time."

Out of curiosity he'd asked Dr. Renard for a hard copy of their test results. Not that he understood what "GH," "DHEA," "FSH," "LH," "ASF," or even the terms that were spelled out meant. But it was reassuring to see the "before" and "current" values—and see how they now fell within the "normal" range for someone in their twenties.

Then, after getting out of bed one morning, just as he started to shave, he saw something in the mirror that startled him. The stubble on his face wasn't white. It was *black*. Even more shocking was the fine brown fuzz covering the top of his head, putting the few wispy gray hairs that had been its sole occupants for the past several decades to shame.

From then on, he had trouble sleeping at night. It was almost like being a kid again on Christmas Eve—overexcited, anxious to see what new surprises awaited him in the morning. Every day, when he woke up and looked in the mirror, he looked different—younger. It was like pushing the "reverse scan" button on one of those old VCRs. The command "Backward, turn backward, O Time, in your flight," wasn't only a nice line of poetry anymore. Now, Time was actually obeying!

And Agnes was changing too. Although she never said anything about it, sometimes he caught her looking in the mirror—stroking her softer, rosier cheeks, and running her hand through gray hair to search for slowly lengthening brown roots.

Not that those changes didn't have disadvantages. His old clothes didn't fit his new physique—more muscular, and without the potbelly that had been his companion for so long. And he no longer bothered using their senior citizen discount cards. It took too much time explaining the situation to skeptical, acne-faced ticket sellers and checkout clerks. The most embarrassing incident was when he'd ordered a glass of wine at that restaurant—and the waitress had asked to see his driver's license! Despite telling her over and over why the picture and date of birth didn't seem to match the way he looked, she hadn't believed him.

But through it all, Agnes remained cold and distant. Every time he tried to get close to her, she wouldn't respond. Desperate to get some kind of reaction from her, he'd even tried starting arguments with her. But that didn't work either.

The disgusting part was, those raging hormones from his first youth were making a dramatic reappearance. Although, as the years had gone by, the flames had never died out, he had to admit now that just before the treatment they'd been more like a pilot light. Sometimes the rational part of his mind was almost overwhelmed by feelings and urges that, in their intensity, bordered on temporary insanity. Especially when he saw his wife taking a bath. Every morning she looked younger, more radiant and desirable. The beads of moisture glistening on her bare voluptuous flesh

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made her look like a water nymph from Greek mythology, or a *houri*.

If he'd asked her, Agnes would probably have let him do what he wanted. But he never asked. That, he knew, would have just been using her body. If it wasn't a mutually desired act of shared love between them, what really was the point? So, after all those years, the cold showers started again. Worst of all, after nights with particularly vivid dreams, sometimes he *had* to take a shower when he first woke up in the morning for an embarrassing, hygienic reason.

He'd almost laughed when Dr. Renard, in one of their recent visits, had even brought up the subject of birth control. Even if their bodies really had changed that much, considering how things were between his wife and him, fat chance they would need that!

The only times Agnes seemed even a little happy or almost smiled at him was when the boys were scheduled to call. She always asked them so anxiously how they were feeling. If they were eating the right foods to keep up their strength, and getting enough sleep. He half-expected her to ask if they always wore clean underwear in case they got hurt and had to go to a hospital. Or tell them to wear something warm if they went outside.

She never seemed to grasp that it took nearly two seconds for her words and image to reach their older son, and at least another few seconds for his reply to come back. When his picture on the 'screen didn't respond to her immediately, she always asked, "Can you hear me? Did we get cut off?" The other night Gerry told them that he'd been selected as a crewperson on one of the new ships that would be heading for Mars in six months. Schrader had felt his eyes mist over when he'd told his son how proud he was of him. Agnes had cried too but, he knew, for a different reason. Her little boy was going even farther away from her.

At least there wasn't a noticeable transmission delay when they talked with David. He'd had good news, too. Next week he'd finally be leaving the space station and heading up to Lunar Base 4 to join his big brother. No, he wouldn't be going with Gerry on the new fleet. You had, he said, to have at least a year's experience on the Moon to qualify. But they were scheduled to build another few ships next year, and if he kept his nose clean and worked hard, he might be able to hop a ride to Mars on one of them. Just before he had to end the call, David said, "I still can't get over how good you and Dad look. It's almost like looking at our old home holos when we were growing up." His last words actually did make Agnes smile.

"Mom, you look so—young!"

And then, one morning, he woke up and saw Agnes lying on her side in their bed, staring at him with a frightened expression on her face. When he asked her what was wrong, her answer terrified him. She said, "Who are you? Are you my husband?"

Fortunately, he was able to get through to Dr. Renard almost immediately. She had apparently just arrived at her office. The 'screen showed her exchanging her winter coat for a

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white lab jacket.

She said, "The side-effect you're describing is not uncommon, though it's usually not as severe or sudden. Some of the medicines we gave your wife as part of the rejuvenation treatment were designed to cure her depression and Alzheimer's disease. They either 'reprogram' brain cells that aren't acting properly, or replace cells that have been destroyed by making the remaining, healthy ones multiply. While those 'good' cells are busy growing new brain tissue, however, they have to temporarily stop working themselves. So, if enough healthy cells are 'off-line' at one time making repairs, the problem they're trying to take care of—like Alzheimer's—can seem to get worse before it gets better. Do you understand what I'm saying?"

"I—think so."

Renard sat down at her desk. "The good news is, the effect usually lasts only a day or so and then, suddenly, the person is completely well. I've seen patients who were totally confused and disoriented and then, literally minutes later, were perfectly fine. Odds are, that's what will happen with your wife too. The best thing you can do in the meantime is to watch her, and help her. Keep reminding her about the simple things, like who you both are, where she is, what year it is, and so on. When she makes a mistake, gently correct her. Be patient. She should get better soon."

The doctor paused. "But, if she hasn't improved by tomorrow morning, please call and let me know."

Schrader spent the rest of the day following Agnes, trying to make sure she didn't hurt herself. It tore him apart to see her like that—wandering aimlessly from room to room, babbling to herself. *Where are the boys? They'll be late for school! I can't remember Mother's number, and I need to call her to see if we can go to her house this weekend!* He lost count of all the times he explained things to her, have her seem to understand what he was saying—and then a few minutes later hear her repeat the same nonsense. He'd had to feed her like a baby, spooning some food into her mouth, and clean her up after she'd soiled herself. Once, when he left her out of his sight for a few minutes to use the bathroom, she'd gotten out the front door. He caught up with her at the corner, pulling her back just as she was about to step in front of a speeding car.

That night, after finally getting her into her night clothes, she fell asleep in their bed. Lying beside her, he did something he hadn't done in years. Fervently, meaning every word—he prayed. *Please, God! Please make her well!* Maybe there was no one out there listening—but, then again, maybe there was. Hoping that, magically, in the morning everything would be all right again, at last he fell asleep too.

But Agnes didn't get better—not the next morning, nor the two after that. During his latest daily call to Dr. Renard, she looked worried. "I have to admit, your wife is taking longer to recover than any patient I've ever treated. However, the textbooks say

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that some people can take a week or more to respond."

Almost too afraid to ask, Schrader said, "Does anyone ever *not* recover?"

The doctor hesitated. "Well, there are a few case reports in the literature. But please remember, such cases are rare."

"But it does happen."

Renard sighed. "Yes, it does happen."

That evening, Agnes fell asleep on the couch in their living room. Sitting on the floor, looking at her sweet, angelic, but vacant face, he felt his eyes turn moist. *Agnes, what have I done to you?*

It was his fault. He was the one who'd browbeaten her into having the treatment. Oh, he'd done it for the best of reasons—"for her own good." Just like when he'd browbeaten her to have Emily Marie. Just like all the countless other, lesser times he'd made her do things by taking advantage of her love for him, or her fears, when *he* thought it was "for her own good." Yes, all those times, he really had done it because he loved her. Yes, he really had been trying to help her. But, like a pompous fool, he'd forgotten that he was only a fallible human being, who only *thought* he knew all the right answers. And that, even when you truly loved someone, even when you had the best intentions, you could still wind up hurting them more than anyone else possibly could.

And then he remembered something important. It had totally slipped his mind in the recent chaos and confusion.

Tomorrow was their fiftieth wedding anniversary.

The woman slumbering so peacefully in front of him now looked almost the same as when they were first married. But it wasn't Agnes. Her personality, her intelligence, her mind—all the things she was, all the things she had been—were gone. What lay on the couch was an empty shell—a shadow, a remembrance of things past.

In the darkened room, a moonbeam glistened off the tarnished gold band around her finger.

I, Thomas, take you, Agnes, to be my wife. I promise to be true to you, in good times and in bad. . . .

Whatever happened, he would be there for her. No, he didn't know all the answers. But, he'd do the best he could. Whatever he could do to help her, to love her, he would do.

In sickness and in health.

Though her mind was gone, her body was still healthy. Even without the booster treatments, she might live like this for—what, another fifty years or more? Even if his love and devotion to her were strong enough to endure them, what about her? He thought of all the pain and indignities *she* would have to suffer. At least when her mother got Alzheimer's it wasn't long before her old worn-out body gave out too, and ended her misery. Agnes wasn't going to be that "lucky."

I will love and honor you all the days of my life.

There was a large throw pillow on the couch. As physically strong as he was now, it wouldn't be that hard to cover her face with it and—

No!

No, he repeated to himself, a little

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more calmly. There had to be a better answer. He didn't know what it was just yet. But, as hard as it was, the best thing right now was to wait, take each day one at a time—and pray. . . .

He woke up on the floor the next morning, and heard someone praying. Agnes had dressed herself and was sitting on the couch, fingering her rosary. He stared at her in wondrous disbelief as she recited a monotonous string of "Our Father's" and "Hail Mary's." Then, most of the way through, she paused, frowning. "Tom," she said, "what's the fifth Sorrowful Mystery?"

His own forehead furrowed. What the hell was it, anyway? "Isn't it—"

"Never mind. I remember now. The Crucifixion." The litany of prayers continued. When she was finished, she looked at him quizzically. "Why did you sleep on the floor last night?"

He stammered, "Beats me."

She shrugged, then started another rosary. This time with the Glorious Mysteries.

When Agnes went into the kitchen to fix breakfast, Schrader made a call. Dr. Renard's smile beamed at him from the 'screen. "Excellent! I think we're finally out of the woods. Keep watching her, keep helping her remember things if she has a problem. Call me anytime if you need to."

They spent a good part of the day in town, shopping. Whenever she could, she held his hand tightly. Several times she asked him what the date was. The second time she asked, he felt an instant of panic that her recovery was just an illusion.

But then she seemed fine. No, better than fine. For the first time in years, she seemed really *happy*.

That evening Agnes cooked them an elaborate supper. Afterwards, despite his protests, she insisted on clearing off the table herself. After gently pushing him into his recliner, she'd handed him one of his favorite books from the nearby bookshelf and turned on the 'screen. "Now you just relax until I'm finished."

He tried to read a page or two from *The Federalist Papers,* but couldn't concentrate. On the 'screen the New York Philharmonic was starting a performance in English of Haydn's oratorio, *The Creation*. He barely heard the confused, unsettled harmonies of its opening section, "The Representation of Chaos." The sounds from the kitchen—dishes rattling, a beautiful soprano voice humming a lively polka tune—kept distracting him

Nor did he notice when the chorus faintly intoned the words, *Let there be light*. Simultaneous with the bright fortissimo outburst by the full orchestra on the following *And there was light,* Agnes entered the room. She pulled another book from the shelf, and curled up on the couch. He recognized the slim volume she was reading. *Sonnets from the Portuguese*. He could read the words on her lips. *How do I love thee? Let me count the ways.*

Then he got up, sat down on the couch beside his wife, and said, "How are you doing?"

"Fine. How are *you* doing?"

"Fine." Then, with a rare flash of inspiration, he said, "Access wedding file."

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Once again, for many minutes, images from long ago appeared on the 'screen. The bad times, the good times. Sorrow, and happiness. Regrets for things that might have been. Gratitude for dreams fulfilled.

"Stop personal file." The orchestra and chorus again filled the 'screen. The baritone and soprano soloists, representing Adam and Eve, were singing their final love duet. *With thee each joy is enhanced, with thee my enjoyment is redoubled; with thee life is blissful; to thee may it be wholly dedicated.*

With his wife cuddled snugly in his arms, Schrader repeated, "How are you feeling?"

"Fine. It's like I've been half-asleep for a long time, and now I'm finally awake."

Then the young, vibrant face of the woman he loved gazed up at him. "Do you think we did the right thing? Getting the treatment, I mean? Think of all the stupid things we've done, all the mistakes we've made. All the heartache. Maybe the next fifty years will be just more of the same."

Schrader sighed. "Maybe. But it doesn't have to be that way. We may look the same as when we were first married. We still, hopefully, have a long life ahead of us together. But you were right. It's *not* like when we were first married. We've already made a lifetime of mistakes—and we've *learned* from them. We survived all those bad times, and because we have, now we're stronger than we were before."

He kissed his wife gently on her forehead. "I won't say life is always going to be easy from now on. One of the few things I'm certain of is that there are still going to be plenty of bad times, maybe more tragedies ahead. But, because we've already shared and endured so much, I think we'll be able to cope with whatever comes our way. And find new ways to be happy together."

Then he smiled playfully. "I know what we can do. It's a perfect way to start our new lives. I remember Gerry saying that the lunar bases are so big now they're almost like small towns. They're even letting the permanent residents bring teenage and older family members up from Earth to live with them. Next time we talk with Gerry, let's ask him how many high school and college-age kids are up there now. He'll know whether they could use some very experienced volunteers willing to go to the Moon to teach those kids, say, History and English Lit."

He grinned at the dubious "Say *what?*" look on her face. Agnes always had anxiety attacks every time they flew in a jet. Or even if their ultra-reliable AI-navigated car went, in her mind, a little too fast. Apparently, even after the treatment, some things hadn't changed. Well, even if he'd sworn off browbeating her, maybe, with a little help from the boys, she might eventually come around to his idea on her own.

Then Agnes said, "What time is it?"

He checked his watch. "Eight forty-five."

She glanced at her wedding ring, then smiled at him coyly. "Do you remember what we were doing at 9:00,

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fifty years ago tonight?"

"How could I forget?"

Silently, she took him by the hand, and led him upstairs. Into their bedroom.

"I think," she said, "we should reminisce some more. . . ."

The call woke her from a sound sleep. She glanced at the clock on her night table. "Damn!" Then she sat up in bed and said, "Answer, audio only."

"Dr. Renard?" The man on the other end of the line sounded frantic.

"Yes, but I'm not on call tonight—"

"I know. I'm sorry to bother you, but. . . ." He went on to explain the nature of the "emergency." As he finished Renard, now fully awake, smiled at her unseen caller.

"—And she's stopped bleeding, but I'm afraid it might start up again. What should we do?"

"Don't worry, Mr. Schrader. The mild pain and bleeding she had are perfectly natural. Remember when I told you that the rejuvenation treatment makes all tissues in the body regenerate?"

"Yes."

"Well, that means, *all* tissues."

There was a long silence. "You don't mean—"

"Yes, I do. Hymens grow back too."

One spring evening, a few months later, Schrader slumped wearily onto the couch. Even with his rejuvenated body, resuming a full schedule of teaching at the university after vegetating for over a decade was still exhausting. He said, "Holoscreen on." A moment later, after checking the mail, he turned it off disappointedly. Still no message from the International Space Agency on their travel permits. You'd think, he told himself, with two sponsors and the glowing health summaries Dr. Renard sent the Agency all those weeks ago, they should have been approved by now. With the obligatory ten-week training program after they got their permits, if those bureaucrats didn't hurry he and Agnes might not get to the Moon before Gerry left on his mission.

Then Agnes sat down beside him and whispered in his ear, "I went to see Dr. Renard today."

"Did she find out why you've been feeling sick the last few mornings?"

"Yes, she did." She smiled in a way he hadn't seen in many, many years. "Gerry and David are going to have a little sister. Emily Marie—and no arguing over the name!"

Schrader let out a long sigh. Well, the Moon had waited this long. It could wait a little longer. Maybe, someday, the whole family could finally have a reunion on Mars.

Suddenly a horrible thought popped into his mind. Gerry and David had it easy. All they had to do was colonize hostile, dangerous planets. In another three years or so, he and Agnes would be faced with a task far more challenging than that. One that, he knew from past experience, would strain their patience and endurance to the limit.

Potty training. ■

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JARGON, SLANG, AND BUZZ

Language is a wonderful communication device. All sorts of languages are in use today between machines, people, and people/machines. The English language is especially flexible and adaptable although it's far from being easy, logical, or simple to learn and use. It's becoming the world's language of diplomacy and trade, primarily because Americans produced more aluminum in World War II. (This allowed Americans to build more airplanes than anyone else which, in turn, gave them a leg up in the post-war development of international commercial aviation. As a result, and much to the chagrin of the French, air-ground air traffic radio communications worldwide used and still use the English language.)

Technology invents language. (Technology is a word derived from the Greek *tekne* whose literal translation is "know-how.") The English language is full of it. In fact, you cannot be technologically adept or even cognizant these days unless you know jargon, slang, and buzzwords.

One of the definitions of *jargon* is "the technical or secret vocabulary of a science, art, trade, sect, profession, or other special group."

And one of the definitions of *slang* is "the jargon of a particular calling or class of society." (Another meaning is a "language comprising certain widely current terms having a forced, fantastic, or grotesque meaning, or exhibiting eccentric humor or fancy." I'll go with the first of these, thank you, keeping the second in mind nonetheless.)

The expression *buzzword* was invented about 30 years ago in an attempt to overcome the confusion that had occurred in jargon. It's used when the practitioners of a technology need a more elaborate term such as *accelerated interpersonal communications* (AIC) or *strategically dynamic expression* (SDE). Buzzwords are now widely used in politically correct (PC) language, and a frequent user of such buzzwords might be termed an SDE engineer.

Buzzword can be defined as an important-sounding word or phrase usually having little real meaning and primarily used to impress those who don't know what the speaker is really talking about but are too proud to admit they don't. Thus, it combines the attributes of both jargon and slang.

Buzzwords always use the latinized

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form of English. Basically, two forms of English exist. One is termed the *vernacular* and is based upon short, pithy Anglo-Saxon words. The other sounds more erudite because it uses Latin-based, multi-syllabic words in much the same way that vernacular German creates new words by combining shorter ones.

Because readers often *interface* (yet another buzzword) with science and technology, and because one of my tasks is to entertain while subtly educating readers about subjects related to science and technology, here are a few of the more recent buzzwords and their definitions, just so you can be on the bleeding edge (see below). Or, to put it in modern terminology, because you are a TQM-conscious, cross-functional team of communicators who try to be keenly aware of the paradigm shifts inherent in an age of business, scientific, and technical re-engineering, I sincerely hope this will be of value to you.

The hottest buzzword today is *re-something,* a fact that can be ascertained by viewing the covers of most business and technology magazines. Consider everything management is trying to do these days to realign, rebuild, recondition, recreate, redesign, rediscover, re-engineer, reform, refresh, reimagine, reinnovate, reinvent, remake, reposition, reshape, retrench, restructure, rethink, revamp, revitalize, and revolutionize whatever the problem or perceived problem is. (Sometimes no problem exists, which is the reason for the sage advice to novices in any field of endeavor: "Don't worry if you have no problems; someone will make them for you very quickly once you begin to produce/create/achieve or offer competition.")

To do any or all of this, you have to be *ahead of the curve* or in front of the average competitor. This is a buzzword widely used by average competitors.

Best practice is state-of-the-art or -industry performance, something everyone aspires to achieve and usually does because it isn't an ANSI or SI standard but behaves more like Silly Putty. It's the working world's equivalent to Einstein's principle of relativity.

However, if you get too far ahead of what's currently considered to be best practice, you're likely to find yourself on the *bleeding edge* which means you're so far ahead of everyone else that you've created a competitive disadvantage for them.

This usually means that you've *broken out of the box* by solving a conventional problem with unconventional thinking. This is a no-no because it's OK to *push the envelope* but not to tear it open. No one else wants anything breaking out of a box and spilling all over the place. This makes a mess that they have to clean up.

Do that and you become an *agent of change,* not to be confused with those who complain about agents of change.

That usually means disrupting *CFD (continuous flow distribution)* or a *CRP (continuous replenishment program)* that is *consumer driven*—i.e. motivating what is produced when and how fast it's delivered. If you can carry this off by streamlining the pull

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of products in response to customer requirements while reducing cycle time and minimizing the costs of distribution resulting in a continuous improvement in market share plus profitability, you will have attained Nirvana.

You may be able to do this by utilizing *cyber-(fill in the blank)* requiring EDI (electronic data interchange) that will promote but never achieve electronic paperless communications not requiring reinterpretation or retyping unless you turn off the facsimile machine. This is very difficult to do if you're also involved in *globalization*, a buzzword currently thriving in mainstream culture where the intelligentsia, politicians, bureaucrats, and diplomats think globally while acting locally.

To do this, you will not only require innovation, but *new innovative procedures*. Redundancy strengthens this buzzword.

If this requires that the company, laboratory, or agency be *downsized*, you may have to resort to *insourcing* or obtaining products/services/ideas in-house with a group of associates aggressively defending their core competencies against cost-cutting senior managers and third-party providers. These latter favor *outsourcing*, which means that Person A, Person B, and Person C who have been downsized from Company X have either formed Company Y or gone to work doing the same jobs for Company Z at lower salaries, which makes Company X feel good because it has not outsourced a product, process, or project but outsourced some of its personnel responsibilities instead and thus contributed to reinvigoration of the bottom line.

Sometimes this is done using *JIT (just in time)* inventory reduction strategies that feed production with components delivered with only seconds to spare in order to reduce waste in the supply chain. *JIT-II* is a procedure where the vendor actually conducts operations in the customer's facility, which makes it easier for the customer to yell at a late-delivering vendor.

Some outfits extend this to *VMI (Vendor Managed Inventory)* in which the vendor receives stock information from the customer and then calculates what should be shipped where and when to maintain adequate customer inventory levels. This is a preferred procedure by customers because they can then dump their inventory woes on the vendor.

Quality is a buzzword of growing utility. It was once used only in the process of applying stringent standards for measuring and improving performance or service. Now the marketing departments have gotten hold of this and used it to impress senior management in such phrases as "shoveling on the quality" and "piling the quality high." This leads to *TQM (Total Quality Management)* which really means employing an on-site quality guru. Be sure the TQM czar is given a shovel.

Computer technology has created so many new buzzwords that a book could be written about them, but it would be obsolete even before alpha-testing (proofreading). However, the word *virtual* keeps popping up in all

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sorts of places these days. The word has two meanings. The archaic one means "of or relating to a virtue or efficacious power." The more contemporary one means "being in essence or effect, but not in fact." The meaning intended by the user is left to the recipient as an exercise in virtual frustration. When used in the laboratory, shop, or production line, it contributes strongly to the efficacy of any excuse for non-performance by combining it into such buzzwords as virtual performance, virtual data points, or virtually anything you want.

With this brief foray into buzzwords, the reader should now be competent to understand such concepts as *strategic planning*. According to research conducted at Ohio State University, some 114 different interpretations of this buzzword exist. These range from the simple "what we want to be when we grow up" to the sublime "long-term integration of inbound raw material movement, multiplant production planning of finished goods, and enhanced management of the traditional functions of acquisition, engineering, production, marketing, sales, and customer service into a strategic business plan." Both of those make sense, don't they? This is especially true in these dynamic times when we must create change to obtain results, and this requires redoing management although managers may have a difficult time facing reality and changing their practices from management to leadership. Or should that be stated as "making a paradigm shift from management to leadership"?

Or would it just be easier to sit down and re-engineer the whole language?

For those readers who wish to dig deeper and have a suitable shovel with which to do it, try Dr. James Tompkin's excellent book *The Genesis Enterprise: Creating Peak-to-Peak Performance* from McGraw Hill as a starting point because he explains the universal appeal of any particular set of buzzwords at the time. Or look at nearly any industrial periodical (magazine) or scientific-technical journal.

Excuse me, did you see that white rabbit disappear down that hole just now?

(My computer's style-checker program worked very hard evaluating this column and telling me to "use simpler wording." You should see what it had to say about some of these buzzword phrases!) ■

If fifty million people say a foolish thing, it is still a foolish thing.

—Anatole France

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Rick Shelley

THE SHAPER

What's the best approach to a tough problem?

Illustration by Janet Aulisio

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The world had ceased to exist for James Kaiser Lohman. Deeply morose, his thoughts would not extend beyond the most narrow dimensions of self. He was hardly aware of the city around him. For an hour or more he had been wandering the streets, paying no attention to where he was going, scarcely paying attention to traffic when he crossed a street. Twice he had nearly been hit by cars. Even the swearing of those drivers had not penetrated his awareness.

Being hit by a car would have come almost as deliverance to Jimmy. "I'm dead already," he had told himself the second time. "Might as well get it over with fast." That had led to protracted thoughts of suicide ... . and a sense of relief, a feeling that—just maybe—he still had a little control over his life. Or whatever was left of it.

A car sped past him, the driver holding his horn down for more than a block, a Doppler scream that finally dragged Jimmy's mind out of his somnambulistic trance. He blinked several times. The honking car was already out of sight. Jimmy thought that it must have been traveling at least sixty miles per hour.

In the middle of the city? Jimmy looked around. Remarkably, there wasn't another moving vehicle in sight, in either direction. Nor were there any pedestrians visible, as far as he could see. In the middle of a weekday afternoon, the absence of both sorts of traffic was incredible. And the lack of parked cars along the street went beyond incredible. It was impossible, almost a violation of natural law.

"Where am I?" Jimmy asked himself softly. He couldn't place the anonymous apartment buildings across the street. He turned. On his side of the thoroughfare there appeared to be some sort of park. A twelve-foot high hedge, dense but carefully pruned, bordered the sidewalk.

"I don't remember ever seeing that," Jimmy said.

The novelty held his attention. He stared. Then he started walking again, following the hedge, trying to see through it. But there were no gaps. Nothing was visible through the thick tangle of branches and small, shiny leaves. Near the next corner, though, there was an opening in the hedge. A wrought-iron gateway framed the beginning of a gravel path.

Jimmy took his hands out of his pockets for the first time in an hour and turned to the right, through the opening, and kept walking. There was high greenery on both sides of the path, equally tall and impenetrable. *It's a maze, a real honest-to-God maze,* Jimmy realized after several minutes. From some chance memory, he decided that the shrubbery had to be yew. He recalled seeing a high yew maze in some old black-and-white movie, though he couldn't put a name to the film, or associate specific actors with it.

After making several turns—and once retracing his steps after turning down a dead end in the maze—Jimmy stopped walking for a moment and simply looked around at the hedge on either side of him.

"How could I possibly have missed this for years?" he said, not the least abashed to be talking aloud to him-

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self. There was certainly no one around to catch him at it. "I thought I knew all of the parks in town and I never even *heard* of this one."

Jimmy inhaled deeply, held the breath for a long moment, then exhaled slowly, savoring the smell of the dense greenery. The scent was of nature, without the normal gagging blanket of urban pollution. There was no diesel smell of buses and trucks, no stench of garbage rotting in the open. Nor were there any of the cloying antiseptic scents of hospital and doctor's office. Wherever the distraction had come from, it was precisely what Jimmy needed. He shook his head several times in wonder, then resumed his walk.

The lanes between the hedges were so narrow that he lost any awareness of which direction he was heading. He couldn't make out anything of the sky but a narrow band right overhead, and the day was overcast, just enough that he couldn't gauge direction by the Sun. Occasionally, even that narrow band of gray light disappeared. At intervals, tall, stately trees rose out of the hedge, their crowns totally blanking out the sky. Jimmy wasn't certain what the trees were, perhaps oak. But on either side of each tree trunk, the bushes pressed close. He couldn't see through to the next lane no matter how hard he tried. The hedge was too thick, the branches too stiff, the leaves too dense.

There were frequent turns in the maze. Twice more he had to backtrack after going down blind alleys. After twenty minutes, Jimmy started to marvel at the size of the park. In all of that time he hadn't come to another exit. He also had not heard a single sound of traffic. For all practical purposes, the city around him might have ceased to exist.

After thirty minutes, Jimmy's heart was beating more than a little faster than normal. His mind started to conjure atavistic fears from long-suppressed memories of childhood fantasies—dragons and ogres and witches, monsters under the bed and behind the closet door, creaking doors and things that went bump in the night. It was difficult enough for him to accept that he had somehow missed the existence of any park with a maze like this in a lifetime spent in the city. It was totally inconceivable that he could have missed a park as large as this one now appeared to be. There was only one park inside the city so large, and it was miles away—and it had never had a large, formal maze anywhere in its limits. The park commissioners and police would never have countenanced such a hazard to public safety.

Jimmy was breathing hard. He was tired—bone tired. That was one of the symptoms that had taken him to the doctor and, after days of examinations and tests, to the deadly diagnosis.

He stood motionless for several minutes, waiting for the return of some energy. He was almost ready to sink to the pea gravel and sit right where he was, maybe even lie down. But he reasoned, "This is a park so there must be benches around here *somewhere*."

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While he waited for some resurgence of vigor, Jimmy considered giving up and retracing his steps. There was certainly one way out of the hedge, the gap that he had entered through. But that exit was just as certainly a half hour's walk from where he was, even if he could find his way back without taking too many wrong turns. There had to be another way out closer than that. Maybe as near as the next turn or branching. Finally, he took a deep breath and started walking again, more slowly now.

Ten minutes later the maze finally disgorged Jimmy into a clearing that was a half block in diameter. There were a few small pine trees in the clearing, but the primary feature of the open space was a small cottage that appeared to belong in some Elizabethan village, from its whitewash and exposed beam siding right up to the thickly thatched roof.

Jimmy stopped walking and stared. "I know *this* is impossible," he muttered, shaking his head.

A tiny curl of smoke rose from a wooden chimney at one end of the house. At first, Jimmy didn't notice the old man sitting on a bench next to the cottage's only visible door. The man stopped what he had been doing—whittling at a chunk of wood—and lifted his head.

"Hello, young man," he said, his voice soft but carrying easily. "Come over and have a sit-down. You look exhausted."

"I *am* exhausted," Jimmy said without thinking. He started walking toward the bench but after just three steps he stopped as abruptly as if he had walked into a wall. The old man hadn't opened his eyes when he "looked" at him, when he spoke.

"Is something wrong?" the old man asked mildly. His eyes still did not open.

"Everything's wrong." Jimmy took another cautious step. He paused again, took in a deep breath and let it out, and continued toward the bench. *What difference can it make?* he asked himself.

"Take a load off your bones." The old man patted the bench next to him, using the hand that held the knife, when Jimmy got to within three or four steps of him.

Jimmy stopped again. The old man not only had not *opened* his eyes, he didn't *have* eyes. The eyelids were deeply sunken. There could be no eyeballs under them.

"Sit down, young man, before you fall down," the old man said, his voice firmer now.

"How did you know I was there?" Jimmy asked, standing directly in front of the whittler. "You couldn't see me."

"Couldn't I?" There was a laugh in the voice now. The old man tilted his head back. For all the world, he seemed to be staring directly into Jimmy's eyes.

"Blue eyes," the old man said. "And far too many wrinkles in your face for one so young. Sit, sit."

Too astonished to protest any further, Jimmy sat. He felt as if he were melting, flowing onto the bench without effort, without will. The wood was rough, deeply textured. Jimmy used both hands to raise himself and

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adjust his position a little, worried about getting a sliver in a delicate spot.

"Something to refresh you? Lemonade perhaps? I have a fresh pitcher of homemade."

Jimmy nodded. "I could use something."

"I don't have any alcohol here, I'm afraid," the old man said, as if he had read Jimmy's thought that he could use something stronger than lemonade.

"Lemonade is fine," Jimmy said. Shock kept him from reacting more intensely, shock and exhaustion.

"My name is Walter," the old man said as he set his knife and the chunk of wood he had been whittling at on the bench next to him, on the side away from Jimmy.

"I'm Jimmy Lohman."

Walter stood, in apparent slow motion, and put his hands to his hips. He stretched backward for a moment, then sighed. "Sometimes I sit too long without moving around," he said. "The joints stiffen up then. I'll be right back." He was wearing baggy tweed trousers held up by suspenders. His shirt was gray, as baggy as the trousers.

Jimmy watched closely as Walter walked into the cottage. The old man didn't move with the slightest hesitation or sign of handicap. He went around Jimmy's outstretched legs and turned precisely into the doorway. When he came back out, not more than two minutes later, he was carrying a metal pitcher and two tall glasses on a small three-legged table. He set the table down, took the pitcher, and poured lemonade into both of the glasses. Ice cubes clattered around in the aluminum pitcher. The glasses frosted over as the drink was poured into them.

"It might be a little tart for your taste," Walter warned. "The older I get, the less sugar I add to my mix."

Jimmy took a cautious sip while Walter sat. The lemonade was very sour, almost painfully so, but it tasted remarkably good for that. "It's fine," Jimmy said when his mouth quit puckering.

Walter chuckled softly. He drank down half of his own drink in one long gulp, then set his glass down. He picked up his knife and the chunk of wood, then started whittling again.

"You look like a man with a world of troubles." Walter didn't look at Jimmy. He "stared" toward his whittling.

"Where is this place?" Jimmy asked, looking around. "I don't see how I could possibly have missed this."

"It's just a place," Walter said. "I'll grant you, most people do miss it. You must have needed it powerfully to have wandered in."

Jimmy stared at Walter, watching the old man's expressionless face. "Will you tell me one thing, straight out?" Jimmy asked after a moment.

"If I can."

"Have I already died? Is this some gateway to the afterlife?"

Walter didn't laugh. Jimmy had more than half expected laughter, had almost hoped for it. The silence knotted his stomach until Walter spoke again.

"No, you're not dead."

"Then what *is* this place?"

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Walter stopped carving and turned his face to Jimmy. "You'll think me less than candid if I say merely that it is only my home but, in truth, it is no more than my home."

"Then I guess I've gone crazy." Jimmy took a long pull at his lemonade. Even the astringent taste didn't sway his belief in that last statement. "The news tipped me over the edge. I couldn't handle it."

Walter sighed. "It's always the same. People find this place because they need it, and then they can't believe that it's real."

"How could I?" Jimmy challenged.

"That's an answer I've not yet found. Will you tell me about yourself and what puts you in such a dismal mood?"

Jimmy took more than a minute to consider that request. "Why not?" he asked. "Whether I'm crazy or not, what can it hurt to talk?"

"You might even find some help in it," Walter suggested when Jimmy paused.

"It's simple enough. I'm dying," Jimmy said. It *hurt* to say it out loud like that. He had been thinking it ever since the doctor told him what the tests had shown, but now, finally, he had actually said it. *I've sealed my doom now,* Jimmy thought, not seeing how irrational it was to think that saying the words guaranteed their truth.

"We're all dying, from the moment we're born," Walter said. "What makes you feel your mortality so strongly?"

"Terminal cancer." Jimmy let those two words hang. "Some of what the doctor said is a bit fuzzy. The shock was too much. I got hung up in the start and missed some of it, I think. A pair of inoperable tumors in my brain, growing. I was having headaches, and started to have a little trouble with my eyes. Doctors, tests, consultations, more tests. Today, the brain specialist said that I've got a month, six weeks, maybe two months left, at most. I start chemotherapy tomorrow, but the doctor wasn't optimistic. There might be a temporary remission, he says. The tumor might stop growing for a while, or even shrink, but it will only be a temporary reprieve. The cancer is too far along to really hope for a complete cure, and he says it is extraordinarily aggressive, whatever that means. And he says that I'll be in a great deal of pain before the end, and that I'll almost certainly go blind first."

"Did you expect him to wave a magic wand and make the disease go away?"

"Isn't that what doctors are supposed to do? You get sick. The doctor makes you well."

"Well, they don't use leeches at the first sign of a fever anymore, perhaps, but doctors aren't magicians. They can't work miracles."

"*Miracles.*" The world sounded like a curse the way that Jimmy said it.

"You're looking for a miracle but you don't believe in miracles," Walter observed.

"Is that what *you* offer, miracles?"

"I offer neither miracles nor magic."

"What do you offer?"

"Lemonade, a place to sit and rest, and a sympathetic ear."

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Jimmy held back a bitter reply. The anger surprised him, and how ready it was to leap out at the slightest excuse. He took another sip of lemonade and tried to control his emotions.

"I appreciate it," he said at last. "The lemonade, the seat." He gestured vaguely. "Perhaps I need the sympathetic ear most of all. I don't know how to deal with this . . . this." He shook his head. He couldn't decide: this *what?*

"How old are you?" Walter asked.

"Twenty-seven. I won't see twenty-eight unless somebody comes up with one of those miracles I don't believe in. My birthday is six months away."

Walter didn't speak right away. He was busy at his carving again, making a series of very small cuts. Jimmy looked but couldn't tell what the old man was trying to make. Maybe he had nothing special in mind. After perhaps five minutes, Walter spoke again.

"Are you married?"

"No." Jimmy shook his head. "I've come close a couple of times, but there never seemed any rush. I thought, wait until you're a little more secure, until you don't have heavy money worries to sour it. Ha."

"You have family, or someone special?"

"Family," Jimmy allowed. "I dread telling them. Listening to them carry on will be even harder than hearing what the doctor told me. Someone special? Not now, not anymore. Never again."

"Don't pen yourself in with absolutes. Those thoughts can become as real as iron bars."

"Sure, everybody's going to want to fall over me. I have a *disease!* Maybe it's not AIDS or leprosy or the plague, but it doesn't make that much difference. I'm sick. I'm dying. I might as well ring a bell and yell 'Unclean,' every time someone gets close, the way lepers had to back in the Middle Ages."

"You have a crystal ball? I used to, but threw it away. I couldn't see any future in it." Walter laughed at his own joke. Jimmy only snorted.

"I've heard that one before," Jimmy said. "But some things you don't need a crystal ball for."

"And they tend to lie when you least expect it anyway," Walter said evenly.

"What the hell are you?" Jimmy asked. "*Who* are you? You didn't answer any questions."

"I'm no more than what I appear to be."

"I don't even understand that much. You appear to be an old man who can see without eyes. You've got a primitive cottage in the middle of a strange maze in a large park that doesn't exist in this city. But it does. Or I have gone crazy, the way I thought."

"You haven't gone crazy, if I'm any judge."

"Are you?" Jimmy pounced quickly with that question.

"I judge no one and nothing," Walter said.

"See, you're still not giving me any straight answers. Why are you torturing me?"

"Am I?" Walter sighed. "Perhaps I am, in a way. I'm sorry. I don't mean

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to add to your burdens."

"I've told you about me. Won't you tell me about you?"

Walter hesitated before he nodded. "Some folks used to call me a wizard, though I've never claimed that for myself. I do have a job or work, of sorts." He chuckled, soft and short. "I offer a place to rest, such refreshment as I can, and an ear to those who need to talk about their troubles. When I can help, I do. This place"—he gestured around him—"is wherever it needs to be, wherever my modest services are required. I don't suppose it really exists in the world. But then, perhaps it does. Who am I to judge? I never leave my garden here."

"A wizard is just what I need now," Jimmy said. "Someone to do some abracadabra and take the tumors out of my head."

"I told you, others have called me wizard, now and then. I have never claimed to be one myself. I'm not. I don't have any magic or miracles to offer you. I told you that before. And I don't know if anyone has the magic you need."

"No magic, no cure," Jimmy said. "Just the death sentence the doctor gave me."

"I said that I don't know if anyone has the magic you need," Walter said. "But I also don't know that no one has it."

"What's that supposed to mean?"

"Precisely what I said. I don't know the answer, the solution. I don't know if the magic exists. Most likely, it does not. But there is a small but finite chance that it does. And, *if* it does, I do know where you have to look for it."

"Where?" Jimmy asked.

"Within yourself. I can't give you a magic, a miracle. If one exists, it exists in here, and here." Walter reached over and tapped Jimmy first on the head, and then on the chest. "It may exist. Or not. But if it does, you won't find it unless you look, unless you give yourself a chance. And until you can accept the possibility of failure, you cannot succeed. The doctors say you are dying. You've gone from denial to anger, from 'This can't be happening to me,' to 'This *shouldn't* be happening to me.' That blinds you. That takes your eyes away."

"Should I wear a tall, pointed hat and start chanting mumbo-jumbo? And what took *your* eyes away?"

Walter stared eyelessly until Jimmy looked down, away from him.

"I'm sorry," Jimmy said. "You didn't deserve that."

"You don't deserve what you're doing to yourself. Me, I see well enough, even without eyes, as you have noticed."

"What does it matter? I'm as good as dead already. No, not 'as good as.' Dead might be better. Then I wouldn't have all of the suffering left to go through."

"If you really believed that, you never would have found your way through my maze."

Jimmy looked across the clearing, at the opening in the hedge. "The maze," he said. "I almost forgot that. There *is* magic here. You as much as said so. You said that this place appears wherever it's needed."

"If you call that a magic, I won't argue the term."

"If you have *that* magic, then why

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can't you cure me?"

"The magic is not mine. I have no magic of my own."

"You said that people have called you a wizard. They must have had *some* reason."

"I cannot answer for what reasons they might have thought they had. I have not lied to you, young man. I do not lie, ever. If there is magic to be found, you must find it within yourself. But *you* must do the seeking. If you refuse to look for it, it will never come calling."

"If, if, if." Jimmy shook his head and stood up. "I don't know what to make of all this. I guess I'm not thinking straight. I haven't been. Maybe you're just a hallucination brought on by the tumors, or the pain pills, or something. If. . . ." He squeezed his eyes tightly shut for an instant in response to a sudden pain behind them. "In any case," he said when the flare receded a little, "if you're just a figment of my imagination, you're still better than the nightmare the doctor laid on me. If you're what you claim to be. . . ."

Jimmy was unable to finish that. He had no idea what more to say.

Walter stood and stepped close to Jimmy. "I do not offer false hope to fight real fear. But neither do I offer despair."

"Thanks for the lemonade . . . and everything. Now, if I can just find my way out of this maze, I'd better be going. Before I decide that I don't want to leave at all."

"Alas that I cannot offer to *let* you stay. Even that magic is denied me. But you cannot lose your way leaving my garden. You can only lose your way afterward."

Jimmy turned toward the opening in the hedge. Walter put a hand on his arm.

"A second, please. I have no magic to give you, but you would make me feel better if you took this with you." He took Jimmy's hand and pressed the piece of wood he had been carving into it. "If nothing else, perhaps it will help you to believe that this garden was no dream."

"Thank you, again." Jimmy started to raise his hand to look at the carving but stopped when the old man, and the cottage, disappeared.

Jimmy looked around. There was no park, no maze. He was standing on the sidewalk, near the entrance to his apartment building. Traffic moved on the street, people moved on the sidewalk. And parked cars separated them.

A fit of shivering came over Jimmy despite the heat of the day. Finally, he looked down at his hand again. He still had the piece of wood. He lifted it closer, and saw himself. The eyeless old man had carved a perfect likeness.

Blue eyes looked up at Jimmy. The statue blinked, and one eye remained closed. Jimmy squeezed the wood until the statue seemed to inhale.

"So I'll look for the magic myself," Jimmy whispered. "What have I got left to lose?"

The statue's eye opened again.

The prick of a needle in his arm caused Jimmy to flinch. The world started to go fuzzy around him. He widened his stance and spread his arms to improve his balance as vertigo

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attacked. Around him, the day darkened and the scene faded to black. He was not entirely unaccustomed to the disorientation, though while it lasted his mind could not gather a quorum for coherent thought. He tried to massage the spot on his left arm where he had felt the bite of a needle, but his right hand refused to obey commands. Then there was the sensation of weight being removed from his head, a lightness that made him feel as if he might float away.

His eyes watered. His mouth was dry. A groan managed to escape his cracking lips.

"Take it easy. You'll feel better in a moment," a distant voice said. Coming out of the limbo, it might have been the voice of God.

Slowly, Jimmy's vision started to clear, and he saw a bookcase filled with books. Then he saw the doctor, the therapist, hovering over him. Jimmy blinked several times, then turned his head each way. The computer was on the table at his left, the virtual reality headset sitting next to it.

"Just take it easy, Jimmy," Dr. Carlson—Dr. *Walter* Carlson—said. "Give the drugs a moment more to wear off. I gave you the stimulant to help."

Jimmy closed his eyes again as real reality flooded back into his head. Narcoanalysis in Neverland.

"Why couldn't you leave me there?" he asked in a whisper. Though he was unaware of them, tears started running freely down his face. "I could handle it there."

"You're doing fine, Jimmy. We'll talk again this afternoon, after you've had a little time to rest."

Dr. Carlson pushed a button that Jimmy could not see. Almost immediately, an orderly came in to push Jimmy's wheelchair back to his room in the hospice. But as the chair started to roll through the doorway, Jimmy suddenly stuck a hand against the jamb, causing the orderly to stop.

Jimmy looked down into his other hand, the right hand, and stared at the head of the small wooden statue he was clutching.

"No, it did happen. It *was* real," he whispered, so softly that not even the orderly heard the words.

He did not open the hand, but moved it up to his chest over his heart. He let go of the doorjamb so that he could resume his ride back to his room.

Dr. Walter Carlson, MD, Ph.D.—psychiatrist—closed the door. A moment later, *Father* Walter Carlson—priest—knelt behind his desk and crossed himself. In his left hand he held his rosary and a duplicate of the wooden statue that he had given Jimmy Lohman, the statue the young man held tight against his breast—a statue of St. Jude.

After a prayer and a moment of contemplative meditation, Father Walter looked at the statue. "I have to use all of the tools that have been given me," he whispered. ■

A wise man will make more opportunities than he finds.
—Francis Bacon

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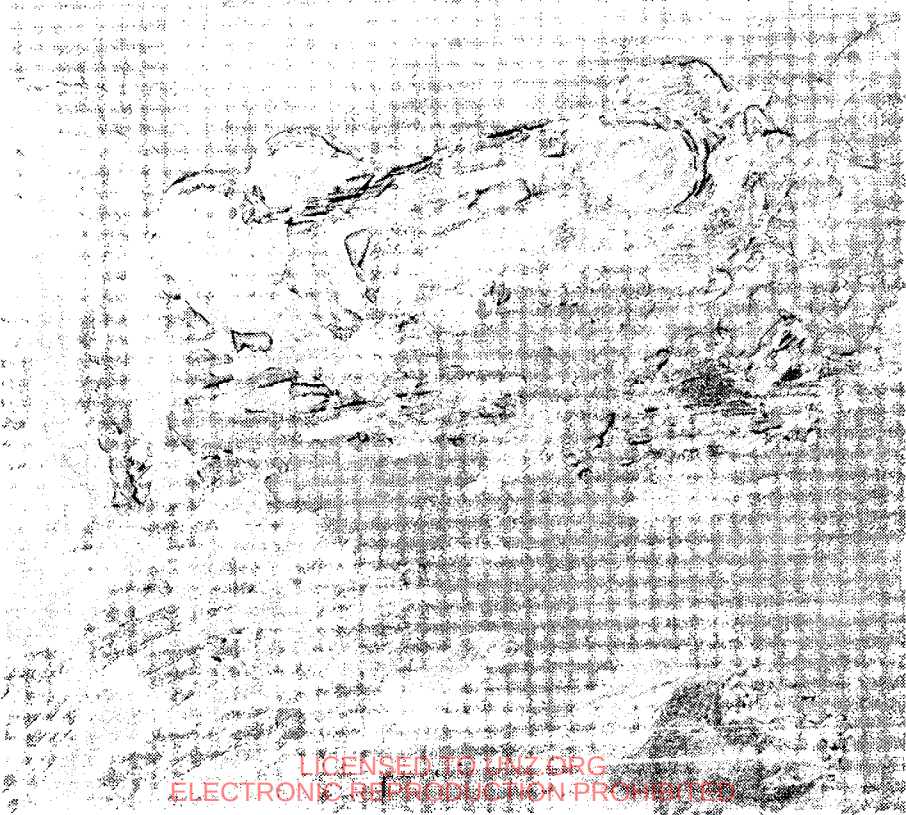
A.J. Austin & Daniel Hatch

GERRY BOOMERS

The worst effects of addiction are much the same, no matter what you're addicted to. . . .

Illustration by John Stevens



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Ed Ronson regarded the dying razor in his hand, the soft buzz fading as he stared at it.

So much for manufacturer's claims, he mused. The charge should have held for at least a month, and he had recharged the razor only five days earlier. But then he remembered that it had been plugged in the day the power went off, and must not have had a chance to become fully charged.

Leaning on the edge of the sink, he bent closer to the mirror and ran a hand over his chin, then down his neck and over both cheeks. The small amount of morning sunlight streaming through the tiny window over the bathtub made it difficult to see even with the shower curtain pulled aside, but his face felt smooth enough. He'd look just fine at the meeting. At least he wouldn't have to worry about trying to use a blade for a couple more days. Not having shaved with a blade for at least forty years, the thought of using one on a daily basis until the power returned didn't thrill him. He frowned at himself in the mirror.

"Do they even make shaving cream anymore?" he asked the reflection mere inches from his nose. He stood straighter, then added under his breath, "Damned Chinese."

"Does that mean if you cut yourself to ribbons shaving, *that's* the fault of the damned Chinese, too?"

He smiled and looked over his shoulder to find Carol leaning against the door frame, her arms folded across her chest in mock reproach. "Yeah, why not? We've been blaming everything else on them for the last few days." He set the dead razor in its regular spot on the shelf below the mirror and leaned in to better examine his reflection once more. "How long have you been there?" he asked.

"A while." She tried to keep up a pretense of disapproval at his offhand remark, but failed, and allowed a smile to spread across her features. "You missed a spot." She reached out and ran the tip of her index finger beneath a corner of his gray mustache, making a faint scratching sound. "You know, I've enjoyed watching you shave and get ready for your day for nearly forty years now," she said, encircling her arms around his waist from behind. Standing on tiptoe, she leaned her chin on his right shoulder and looked at their reflection in the mirror. "Why should it be any different just because of some stupid Chinese satellite? Why should that change anything—anything important, anyway?"

"It shouldn't." He kissed her once, then turned away from the mirror to embrace her. "And I hope it never does."

Still encircled in his arms, she sighed deeply and mumbled something that sounded suspiciously like, "Damned Chinese."

"What? What did you say?"

She pulled away slightly, staring past him into the mirror and playing her hand across her face and neck. "It's these shadows. With no light in here but the window, the shadows make me look so old."

He followed her gaze and was disturbed by the true look of concern in her eyes. Why was she so upset by

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her appearance? Ignoring his own reflection he studied his wife in the mirror. She still wore her hair long and straight and, although it glowed silver gray even in the dim lighting, it was thick and full bodied, framing her face perfectly. He pulled her hair back and placed his hands on her shoulders, feeling the strength and muscle tone of a body that had been well taken care of. Even at sixty-eight she still had a flush of youth about her face. But for the color of her hair and the tiny wrinkles at the corners of her deep blue eyes, in his mind she looked little changed from the girl he'd met at the Eagles concert in New Haven when she was just twenty-three.

"You look fine," he said sincerely, bringing the smile back to her face, "and I can't think of anyone I'd rather look at."

He nuzzled her neck and she leaned her head back, closing her eyes and smiling warmly.

"I like that."

"Do you know how much I love you?" he asked, turning her around by the shoulders.

"I think so."

They embraced and kissed again, enjoying the quiet moment. A soft, spring breeze played through the bathroom, fluttering the shower curtain and bringing with it the gentle fragrance of lilacs that mixed delightfully with the scent of Carol's hair and the aroma of coffee from the propane camp stove he'd set up for her in the kitchen. A bird was singing somewhere outside, but he couldn't tell for sure what kind it was. He held her lovingly for several moments, enjoying the closeness they shared, and thought idly that had it not been for the lack of electricity—with the lights on, the window shut, and the bathroom vent fan running annoyingly overhead—this moment might never have occurred. And at seventy-one, he wanted to enjoy as many moments like this as he could.

He glanced at his watch, a battered old Timex, and saw that everyone was probably at Brandon's house already, gathering to see the latest news about the blackout, but he didn't mind so much if they arrived a few minutes late. There was little chance the news would be any different today than it was the day before. And this moment was much more important.

Maybe the Chinese weren't so bad after all.

"Oh-oh, C.D. must be in the mood to needle someone today," Ed said as they strolled across the tiny manicured lawn toward Brandon's house. He squeezed Carol's hand and nodded ahead of them at the white-haired man sitting on the steps of the house's side door.

C.D. Merle took a long drag on his cigarette, then waved to them in greeting. His best friend had quit smoking—successfully—just before the turn of the century, and hadn't touched one until the genetically altered safe tobacco had been approved by the FDA a few years earlier. He claimed not to really like them anymore, but with the threat of cigarette-caused disease and nicotine addiction

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nonexistent, he indulged himself now and again, more out of a sense of duty than anything else. "Besides," C.D. had confided to him on more than one occasion, "the Cybermuppets never grew up around smoke. It really pisses them off." C.D. took more pleasure in irking his younger neighbors than did most folks, and had raised the practice to the status of spectator sport. It was he who had coined the term "Cybermuppet"—Cybernetic Middle-aged Urban Professional—and he used it at every opportunity.

In turn, Jason had begun referring to C.D.—and obliquely to Ed—as "Geriatric Boomers"—or Gerry Boomers for short.

"I was beginning to wonder what'd happened to you two," he called from the steps as he rose slowly to greet them. "Another five minutes and I would've come to see what you were doing." He grinned broadly, then added, "Who knows? I might even have knocked first." He kissed Carol on the cheek, and shook Ed's hand warmly.

"Heather throw you out again?" Carol asked, nodding toward the house.

"Yeah." C.D. laughed, clearly pleased with himself. "Brandon, Jason and the rest of them were all arguing about which DBS they wanted me to tune in and I got fed up with the lot of them. Just set the screwdriver down on top of the set, took a seat and lit up. Works every time." He took a last drag on the cigarette and crushed it beneath his shoe in the exact center of the bottom step where Brandon's wife Heather would be sure to see it.

"You're incorrigible," Carol said, shaking her head. "You know that, don't you?"

"Yep." C.D. reached for the door, but paused before pulling it open. "And I don't want to catch you sneaking back out here later and picking it up, either." He pointed at the cigarette butt as he held the door for her. "Be in in a sec'. I want to talk to Eddie."

She smiled at him, then gave her husband a quick kiss before disappearing inside.

Once they were alone, C.D. raised an eyebrow mischievously. "So . . . just what *were* you two up to?"

"Hey! It's none of your damn business."

"Uh-huh." The grin returned. "That's what I thought."

"So what's been happening in there?" Ed asked, changing the subject. "What have we missed?"

"Same old shit." C.D. pulled a pack of cigarettes from his pocket and started to remove one, but when he saw that he had only a few left he changed his mind and slipped them back into his shirt. "I swear, Eddie, these people just aren't happy unless they're unhappy about something. They were already arguing when I got here and it just never quit: 'Who's going to get the power restored? Is the President going to let the Chinese go unpunished? Why can't we get temporary communications set up so I can get back on-line?' Back and forth, back and forth. Brandon and Heather, the Kents, the Powells, all of them. And Jason's the worst of the lot."

"Jason thinks he's in charge again? Great." Ed got along well with most of

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his neighbors, but the fifty-three-year-old investment banking consultant somehow managed to get on the nerves of even the most tolerant among them. Even Carol, who had a way of seeing the best in just about anyone, didn't care to spend too much time around the man.

"Yeah. So, here I am, your friendly neighborhood electronics expert, trying to get that damned antique of Brandon's hooked into the DBS and *he's* trying to tell me how to do it. Brandon reminds him that it's his set. Jason starts yelling about how what he needs to know is more important. I remind them both that the spare parts for the DBS receiver are mine, and they can go right back into the shielded metal desk in my basement just as easily as they came out."

"The usual."

C.D. nodded. "Yeah. The usual. I'm sorry now I even got the old set up and running."

Ed sighed heavily and looked around the neighborhood. Dutch Elm Acres was one of those cluster housing developments that started cropping up at the turn of the century, before the Crash. All the houses were packed together with tidy little front yards; the extra space in the subdivision was leased to a farmer who grew hay for a horse breeder over in Marlborough. For some reason, it had taken fifty years for real estate developers to figure out that no one really needed a front lawn fifty feet deep.

The only problem with this development, though, was that the homeowners association was split between the old-timers who were moving here on retirement, and the younger owners who still worked all day. The older generation, all Baby Boomers, resented the pushy attitude of the "youngsters," who seemed to want to set rules for everything and everyone. The rule against parking cars in driveways or on the street had nearly brought C.D. and Jason to blows.

As he surveyed the neighborhood, Ed saw that a few kids, who undoubtedly thought more highly of the Chinese than did their parents, were playing on the common green that made up the central area of the subdivision. With school canceled, they were making the best of their unexpected gift of free time. The ground was soft and damp following the previous night's spring showers, so typical for central Connecticut this time of year, and even from here he could see that each child sported knees and elbows that were thoroughly mud and grass stained.

He crossed the few steps to the end of the short walkway and scanned first one way up the deserted street, then the other. Cars were scattered here and there, most in driveways or parked at the curb like his own (C.D. had won the parking debate), but a few still remained in the middle of the street where their electrical systems had died when the EMP from the orbiting Chinese nuke had disabled most of the eastern seaboard from Maine to Baltimore. The association had discussed pushing the worthless vehicles to the side, but no one had yet gotten around to actually getting the effort organized. Meanwhile, nothing moved on the street; nothing, that is, except the steady breeze. And,

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but for the occasional squeal of joy from the direction of the children, it was utterly, delightfully quiet.

"They just don't get it, do they C.D.?"

"What's that?" his friend asked, joining him at the curb.

"All of this." He swept his arm around, indicating what he'd been observing. "The peace and quiet, the lack of pressure, the . . . slowness of all of this. I don't know about you, but I'm not looking all that forward to things getting back to normal." A sudden banging came from behind them and they both turned to see Jason knocking on the window, waving for them to come in. The look on his face told them it was anything but a cordial invitation.

"Aw, shit," C.D. spat. "I swear that guy's coming unwrapped. Five days off-line and he's like a stone dead junkie going cold turkey who's decided he'd rather get a fix." He sighed and cursed again under his breath, then abruptly smiled cheerfully again. "But then, if we didn't have him around to make fun of, what real entertainment would you and I have, huh?"

"If you didn't have Jason and the others to pick on," Ed added, "I think you'd've cashed in years ago."

C.D. chuckled in agreement. "Yeah, you're probably right." Once more, the sound of Jason banging on the window reached their ears. Looking to the house again, they both saw Carol standing with him this time, a reproachful look on her face that said they'd kept him waiting long enough. "However . . . I suppose I'm just as curious as everyone else about what's going on," C.D. concluded as the two of them headed up the driveway past Brandon's BEMW. He paused a moment by the dead vehicle, its hood still open from when he had cannibalized the flywheel battery to power Brandon's antique TV, and touched his friend on the shoulder. "Hey—let you in on a secret?"

Ed looked at him and saw the beginnings of the mischievous grin he'd come to know. "All right, shoot."

"I've already got it linked to the DBS; it's tuned and ready to go. All he needed to do was connect the antenna lead." C.D. beamed, thoroughly pleased with himself. "Can you believe that? One screw, that's it."

Ed reached the door first. "Carol's right, you know," he said, laughing, and held the door open for his friend. "You really are incorrigible."

They entered through the kitchen, which was, like the rest of the house, decorated in early Baby Boomer. Ed had always admired the kitchen, liked the way the enameled kitchen set and white metal Levittown cabinets reminded him of his own childhood. To Brandon and Heather Stavish, these were antiques; to Carol and him—and C.D. too, he supposed—it was like coming home. The pleasant thought was interrupted by the sound of a heated discussion coming from the living room where Jason Kent, as usual, was expounding on his theories of what really happened when the Chinese satellite accidentally detonated over the Atlantic. As they listened at the doorway, it was clear that everyone else in the room had his own thoughts as to what had happened

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and why, and were quick to contradict anything Jason said, point and counterpoint, in pretty much the same manner as they had when they had gathered the previous day. And the day before that. Ed and C.D. had heard it all enough times in the past few days to have memorized the routine. But Jason, driven by whatever personal demons made him tick, always had to be the one in charge, the one who was always somewhere center stage.

Jason liked to unwind on weekends by going up to Wolf Den State Park for a game of paintball. C.D. was always going on about how damned stupid it was to make a game of running around in the woods shooting at people. Too many good kids that he knew too many years ago had gotten killed doing it for real for it to be any kind of fun, he said, galled that Jason considered it a form of relaxation.

Finally noticing the two of them standing in the kitchen entrance, the man stopped mid-sentence.

"It's about damned time! Where the hell have you been?"

"Outside," C.D. spat back sharply. "Getting a break from you."

Jason, caught off guard for a moment by the older man's bluntness, stared dumbly at C.D., his mouth working—for once—uselessly. When he finally managed to collect his thoughts enough to reply, it was with a level, even voice that did not quite hide the anger behind his words. "Who the hell do you think you are, talking to me like that?"

"I think I'm the guy who's going to shove that old TV up your rear end if you don't get off your high horse and start acting a little more like a human being."

His button pushed, Jason rose from his spot on the sofa, crossing to C.D. in a few steps.

Ed stepped into the room. "Look, Jace—"

"No, Eddie." C.D.'s hand on his shoulder stopped him. "This has gone on long enough." He turned back to the other man. "You want me to play fix it with these fucking antiques, then you're gonna have to stop being such an asshole. Look, we *all* want to know what the hell's going on." He gazed around the room, taking in Jason's wife Brittany, Brandon and Heather, the Powells sitting together on the loveseat, Carol and Ed. "What makes you think you're more important than Brandon? Or Chad and Tanya?"

"Because nobody else here has anything *pending*, that's why!" His voice, moments earlier relatively calm, if pointed, was now dripping with anger. "The rest of you can treat this all like some kind of holiday, but I've been working on this merger for *months*."

At that, Brandon was on his feet. "Now hold on just a minute—"

"Months! Do you hear me?" he said again, ignoring Brandon. His wife touched his arm, and although he jerked it away he did force himself to calm down. "Look, the political world may be turned upside down over this thing, and everybody's anxious to point the finger at everybody else, but a hell of a lot of other things are going on as usual. The world markets may be going nuts, but they're still *going*.

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It's only the East Coast that's out of the picture, which means *I'm* out of the picture." He looked around the room, finding little support among the collected faces, and ran his hands back through his perfect hair in frustration. He almost looked like he was going to cry. "The Kishuri Blankenburg merger isn't going to wait, especially with what's going on in the Far East over all this. If I don't get back on-line and seal this thing, I stand to lose. . . . You people just don't understand. I stand to lose a lot."

C.D. was unimpressed. "Maybe if you'd stop acting so high and mighty, the rest of us might actually care, huh?"

Jason approached him menacingly, jabbing his finger in front of him to emphasize his words. "And maybe if you'd stop talking to the rest of us like we're a bunch of stupid children—"

"You want to see what happens to spoiled brats?" C.D. stood his ground, ready to take on the younger man right there and then.

"That's *enough!*" Carol shouted. "You're *all* acting like spoiled children!"

C.D. started to smile, apparently thinking she was backing him up until she turned sharply to him.

"That goes for you, too, C.D." She paused, lowering her voice. "Especially you. I swear, sometimes I think you're the worst of the lot."

Jason remained where he was for several seconds, looking back and forth from C.D. to Carol, then retook his seat next to Brittany on the sofa. Likewise, Brandon and Chad sat back down. No one said anything.

"Listen," Carol said evenly, taking advantage of the moment of silence. "We're all on edge here." C.D. opened his mouth to say something, but thought better of it as she glared at him and went on. "God knows what's going to come out of all of this. The last thing we need is to be at each others' throats right now."

His wife having set the tone, Ed saw an opportunity to step in. "Carol's right. C.D.? Can you get the TV to work?"

"Yeah," C.D. replied curtly, and walked to the old set. The Stavishes had a state-of-the-art video center, of course, tucked away in the family room; but it was useless following the EMP, and would remain just so much junk long after the power was restored. Fortunately, like the rest of the decor in the Stavish house, the TV kept "for show" in the living room was an antique. An old Sears Silvertone with a small, almost perfectly round screen set into the front of an incongruously large wooden cabinet, the set had no complex integrated circuitry or chips and was largely unaffected by the EMP. Although not designed for direct input, C.D. had managed to remove the back and rig a makeshift harness that connected a rebuilt DBS receiver onto the antenna leads.

Not letting on that Brandon could have finished the connection himself—for fear of Carol's wrath, Ed assumed—C.D. tightened the leads and powered up the set. The picture started as a dot in the center of the round tube, then widened to a rolling black and white image that did not quite fill the screen once it finally came to a stop.

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"Damn, I was afraid of that." C.D. slipped the screwdriver absently into a shirt pocket and crossed his arms as he regarded the image. "The battery's just about tapped out. We're gonna have to strip another one of the cars if we expect to—"

"Shhhhhh!" Jason had left the sofa, and was now kneeling closer to the old set, staring intently at the weak picture. He was not pleased. "This . . . this is CBS, not Business Net." He looked up at C.D., his face filled with anger. "This isn't Business Net! I thought you were tuning it to SatStar Five."

"SatStar Five is off-line," C.D. replied simply. "A lot of them have been dropping off as eastern ground links affected by the EMP fall apart one by one. I don't know what happened to this one, and frankly I don't care. Considering I shouldn't even have been able to tie into the commercial satellite in the first place, you ought to be grateful I could get this much."

"But this doesn't give me anything I can *use!*"

"Jace, come on," Brandon put in. "I was hoping for Business Net, too; but at least this is something."

Disgusted, Jason stormed out of the house, slamming the screen door behind him. Brittany smiled a weak apology on her husband's behalf, then wordlessly followed him out. The others, except for Carol and C.D., were already too enraptured with what the announcer was saying to pay much attention; but presently, even the two of them were drawn to the set along with the rest.

The reports were bleak, with casualties now topping thirty thousand. While the nuke itself had done no direct blast damage, the EMP had been devastating: Airliners and private planes, commercial shipping and fishing boats, railroads, hospitals—anything that depended on sophisticated electronics simply ceased functioning. No one other than those with shielded facilities—Coast Guard, Civil Defense, National Guard, military bases and some police and fire departments—had anything that still worked. As a result, there had been riots and looting in the larger cities, confusion and lack of supplies in the smaller towns. And still, they had to consider themselves lucky: more than 90 percent of the EMP had been restricted to open sea. If the satellite had been only a few hundred miles farther west when it blew. . . . The thought was too disturbing to consider.

Ed had been right. The news had changed little from the day before. The only thing different was the degree to which people were being affected—and now they had pictures.

He shook his head sadly and, unnoticed, slipped out into the spring sunshine.

The garage smelled good. The scents of old oil and grease, wood and sawdust, a touch of rust, grass clippings still clinging to the lawnmower, and musty newspapers stacked long past the time when they should have been recycled, all seemed to mix together in a way that comforted Ed as much as a favorite sweater and hot chocolate on a chilly day. Much, much

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better, he thought, than Brandon's or Jason's garage must smell—their electric cars and charging equipment lent little more than the odor of plastic and ozone. *This is what a garage was meant to smell like,* he thought, running his hands over the turquoise blue metal dashboard of the 1957 Chevrolet Nomad wagon. Although a thin layer of dust covered almost everything in the small garage, the wan light from the doorway reflected brightly off the matching turquoise hood of the car. *A garage is a place for storing memories as much as anything else.*

He loved the car as much as any possession a man could have. The antique, lovingly restored years ago and meticulously maintained since, kept him rooted to his being better than anything else in the integrated, cybernetic, on-line, virtual one thing or another that everyday life had become. Only Carol had more power to keep him sane in a crazy world. To Brandon, a house full of expensive Baby Boomer antiques was the ultimate Cypermuppet status symbol. To Ed, they were creature comforts.

He'd kept the car through the worst days after the Crash, even when he had to put everything he owned on the line to keep the hardware store open. When he had his first heart trouble a few years back, he was afraid he might lose the beautiful machine—and at times he resented his ability to replace the worn out parts in her while he had to live with his own.

Sometimes, when Carol wasn't around and he was missing her terribly, he'd sit in the car and reminisce. Sometimes, when he had a headache or wasn't feeling well, the comfortable surroundings worked better than any doctor's cure. And sometimes it was all right to sit in the old car, for no reason at all other than to just be alone. Just listen to whatever he could pick up on the old AM radio, sit back, and think. Carol always understood.

"When's the last time you drove this thing?"

Startled, Ed turned sharply in the front seat to find C.D. leaning against the door frame. He'd gone home after leaving Brandon's, as he had retrieved the bulky fatigue jacket that was his trademark. Oversized and badly frayed, he nearly disappeared into it as he leaned there with his hands thrust deep into the side pockets. How many had he owned over the years? He'd always bring them home all new and deep olive green, wear them till they faded to dull green and finally fell apart, then find another at some surplus store before starting the cycle all over again. C.D. crossed the few steps from the door and leaned in the open window on the driver's side of the Chevy, nodding approval at the immaculately restored interior.

"Hell," he went on, "when's the last time you even rolled the door up and let some sunshine in on it?"

Ed leaned back in the seat, gripping the oversized steering wheel in both hands. "I was six years old when this car rolled off the line." He shook his head, not bothering to do the math. "The clutch is going; it's all right for now but I'll have to replace it one of these days. The tires are thin; I can special order them, but they're expensive.

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The radio would probably work if we gave the battery a good charging."

"I can do that."

Ed looked at his friend, one eyebrow raised. "How about gas? Have you tried to find gasoline lately? Have you *priced* it?" He ran his hands lovingly around the steering wheel, then fingered the polished chrome of the horn ring briefly before hooking a thumb toward a dusty picture frame nailed to the garage wall. Inside the frame was a yellowed document, the words PERMIT: GASOLINE FUELED ANTIQUE VEHICLE barely visible through the hazy glass. "Besides," he added softly, "my ticket expired years ago. Never bothered to renew it."

C.D. stood up and walked around the rear of the car, saying, "You are one sorry sight. You know that?" He got in the passenger side and closed the door with a refreshingly solid thud they both knew they would never hear on one of their modern lightweight electric vehicles, then dug into one of the pockets of the fatigue jacket. "Here," he said, handing a can to his friend. "Brought you a present."

"A little early for—hey, it's cold! How in the hell did you. . . ?"

C.D. laughed and, producing another can of beer from the jacket, snapped the top and took a loud slurping chug. "The day after the power went and it looked like it wasn't coming back for a while, I chucked everything I had into the chest freezer in the basement. You know, I don't think I've cleaned the damned thing out since Tammy—" He paused suddenly, reflecting quietly for a moment. "Well . . . it's been years. There was so much frost and ice accumulated in it that it's made a wonderful cooler this past week. Starting to thaw out fast, though. These wouldn't have stayed cold much longer and I thought. . . . Well, after that nonsense with Jason this afternoon I figured I'd find you here." He held the can out and tapped it lightly against Ed's. "Cheers, pal."

"Yeah." Ed snapped the top on his own can. "Cheers."

Neither man said anything for several minutes as they sipped quietly on the cold beers. Finally, C.D. turned to him. "Tell me: What would you do if you could get this thing running again?"

Ed considered it a moment. "Oh, I don't know . . . drive to the beach and cruise for babes?"

"Not without Carol, you wouldn't," C.D. laughed.

"You're right there." Ed sighed deeply and finished the last bit of foam at the bottom of the can. "I'd probably do something sensible like drive down to Paul and Joanie's and stock up on my heart medicine and Carol's pills."

He crushed the flimsy can and tossed it out the window at the recycling bin. The can clattered far short of the mark and disappeared somewhere behind a box of dusty Mason jars, but he didn't care.

"You've got no sense of romance or adventure, Eddie," his friend said. "I like the beach idea better." C.D. finished what was left of his beer, then in one smooth fluid motion he crushed the can, flung it out his window over the roof of the Chevy dead

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center into the recycling bin. Saying nothing, he got out of the car, went to the garage door and tugged it open, rolling it noisily up and over the garage ceiling. He stood there a moment, his hands gripping the bottom of the roll-up door above his head, and leaned in over the gleaming hood of the Chevy.

"I know where we can get some gas."

The junkyard was little more than the rotting corpse of what was left of America's love affair with the internal combustion engine.

A lot of junk dealers had gotten into the boom when the 20th century auto was made obsolete by the introduction of efficient flywheel driven electric cars. Most of the old vehicles were recycled for their metal, but very shortly the market for recycled cars was glutted and no one wanted to buy the things. There were so many junkers at the end that a lot of small yards went belly-up before they could find someone to haul away their scrap. This particular junkyard was not all that small and extended nearly all the way down to the railroad tracks that passed within a mile of Dutch Elm, on their way to Hartford to the northwest.

"A 1968 4-4-2," Ed said, indicating a rusting hulk three rows down the hill. The car had once been dark green, but only a few remaining patches of weathered paint remained to give the fact away. He leaned back against the rear fender of the car they were tapping, arms crossed and head tilted back in reflection. "My mom's was a silver blue color that was real popular then. I remember begging her to let me take it to the prom in. . . ." He turned, addressing the pair of legs sticking out from underneath the car. The legs thrashed as the man struggled with the gas tank, but Ed, lost in the remembrance, barely noticed. "What would that have been? May of '69? I was a senior at Western Hills."

"How the hell would I know?" C.D.'s voice was muffled, distracted. The tap he was using to pierce the tank didn't seem to be cooperating. "I was sitting in water up to my ass in some ditch on the other side of the world in '69. All I seem to recall about—damn!" There was sharp clanking sound as his tools slipped, a pause, then more metallic fumbling as he resumed his work on the gas tank. "All I remember about '69 is that an awful lot of guys in bamboo hats were doing their best to see to it I never saw an Oldsmobile 4-4-2 again. Hey, listen to this." He thumped on the tank with his fist; the sound was dull and deep, not the hollow echo they had heard so much that afternoon. "I think we got us a full one here. Or nearly full, anyway. Hang on. . . ." There was another moment of metal hitting metal, then, "Give me a hand down here, would you?"

"Coming." A dozen plastic juice and milk jugs were scattered at Ed's feet, one of which was half full of gas—the meager amount the result of several hours' work. The rest, empty and nearly feather light, tumbled and rolled every which way as Ed got to his knees and joined C.D. beneath the car. His friend was filthy, his fatigue

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jacket smeared with grease, dirt and rust. Of course, for C.D., that was just the way he liked it best. His left sleeve was soaked well past the elbow, and the pungent reek of gasoline was everywhere. A slight trickle came from the tank at a spot where C.D. had his thumb pressed tightly. "I'm here," he said once he was in position on his belly. "Right behind you."

Not taking his eyes from the tank, C.D. passed the tools over his shoulder with his free hand. "Start giving me those jugs. One at a time."

C.D. took the first jug and eased it up under the tank at the same time he pulled his thumb off, a veritable gush of dirty brown liquid spewing out. It took a moment to get the jug into a position where more of it actually went in the opening rather than down his arm, but once in place the jug filled steadily, the dark brown changing gradually to a lighter reddish amber as the rusty water trapped beneath the gas in the tank cleared the hole.

"Not bad," Ed said as C.D. plugged the hole with his thumb and passed the filled jug to him. The brown rust water already separating from the lighter gasoline took up only the lower third of the jug—either the sealed tank of the late model vehicle had prevented a great deal of condensation or, better still, the tank had been topped off just before the car was junked. Not bothering to cap the jug yet, he set it firmly into the dirt and quickly handed over another empty one. This time only clear, pure gasoline flowed out of the hole.

Fifteen minutes later the two of them sat in the dirt, exhausted, their backs resting heavily against one of the rotted tires on the car they'd just tapped. Scattered in and around their extended legs was an odd assortment of containers, each filled to the top with gas. In all, they had managed to amass, to Ed's best guess, maybe slightly more than twelve gallons of the precious fuel.

"I'm getting too old for this," he said, wiping the back of a grimy hand across his forehead. His joints ached and his muscles protested—too much time crawling around on ground that never saw the sunshine. The stench of gasoline on his hands and clothes was almost overpowering.

"Hey, I'm two years older than you." Ed could hear a slight wheeze in C.D.'s voice as he rose, brushing uselessly at his clothing. "Feels good, though, don't it? When's the last time you suppose Jason or Brandon did any real physical work? Something that didn't require them to be plugged in or on-line with their invisible corporate whatevers, I mean."

"Who knows," he replied. "And who cares. Come on, Carol's going to think we got lost out here." All but one of the filled jugs had handles molded into them, and they set about gathering them into a straight line with the handles turned in such a way that when C.D. slipped a broken tie rod through them, it formed a serviceable carrying pole. Ed hefted the remaining jug himself, carrying it under his free arm.

"I used to regret that Tammy and I never had kids," C.D. offered as they climbed the steep path leading out of

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the junkyard and back through the woods. "But in the last few years of living next to the Cypermuppets, I've looked at it almost as a blessing in disguise. I'm glad Paul turned out OK. You and Carol got lucky with him, you know that?"

"I know; you're right." Ed smiled proudly as he thought of his son, undoubtedly buried in work at the clinic in Old Saybrook. "Luck, good genes, the fact that Carol was the best mother he could ever have, or the simple grace of God—whatever it was, I'm glad for it. Thanks."

They were up to the old railbed when Ed felt the fluttering in his chest. His head grew light and the edges of his vision closed in.

"Hey, are you all right?" C.D. asked.

"No, as a matter of fact. I need to sit down." He stumbled to the ground and tried to catch his breath. He hated this. It made him feel angry and frustrated. Worse, he hated the sense that gnawed at the back of his head that this was a damn stupid place to die. Carol would be mad at him if he checked out here.

He fumbled in his pocket for his pills, pulled one out of the small tin, and chewed it dry. "These things taste terrible. But I need them to keep the pump running smooth. It helps with the rhythm."

"Don't scare me like that, man," his friend said once he realized it wasn't serious. He dropped to the ground beside him, then pulled the cigarette pack out of his pocket and drew out what looked like a thin white stick, lit the end, and inhaled deeply. "You don't want any of this, do you?"

"Is that a joint? Geez, C.D., that would kill me in a minute."

"That's what I figured. God, getting old is a bitch."

Ed leaned back against the embankment as the heart pill began to take effect, bringing the fluttering under control. "I don't think of it as getting old," he said. "Hell, I don't feel old, just a little uncomfortable now and then."

C.D. held the smoke in, then exhaled in a rush. "You know, I never thought we'd get old. Not like my grandparents, cranky and self-centered."

"I know what you mean," Ed replied, his breath returning to him. "I remember when I figured out what had happened to them. It wasn't that they got cranky and self-centered in their old age . . . they were like that when they were young, too. We just *figured* it was their age. That's why we don't feel old. We haven't changed. Not inside, where it counts."

"That must be why all those cars back there looked new to me," C.D. said.

"Did you notice that too? They weren't old, just rusty."

"Like you and me?"

Ed smiled. "Exactly."

"I always figured that we'd get wise and mellow in our old age," C.D. said, sniffing at the tendril of smoke coming from the end of his joint. "But lately I've come to realize that it isn't going to happen."

"That's because we got wise and mellow in our youth."

C.D. thought it over for a moment. "I guess you're right. I mean, I got all

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the answers I ever needed about life, death, and the Universe when I was sitting in the jungle getting my sorry ass shot at. It was like the rest of my life was just an afterthought to one brilliant moment of great awakening."

"I hope it's been more than that."

"Well, sure. It's been a long, strange trip since then, too. But lately I've been missing those days. When we had nothing to lose, when every day was a new adventure, when every time you went around a corner, you found something new and exciting and wonderful. And now, just when we thought we were coming to the end, the Chinese put out the lights on the whole freaking East Coast. Who would've thought it, huh? And we're lucky enough to have it happen when we've got nothing left to lose. You know, there is one thing I like about getting old—I'm as carefree and irresponsible as I was when I got home from Nam. Nothing to lose, no one to answer to, and nowhere I have to be."

"Well, you may be footloose and fancy free, but I have a wife who's probably worried sick about me," Ed said, pulling himself to his feet. "And the more worried she gets about me, the more pissed off she gets at *you*. Let's go."

C.D. lifted his end of the tie rod and they took off down the rail bed. "Are you sure you don't want a hit of this?"

Ed glared over his shoulder.

"Naw, I guess not."

They started work on the Chevy the next morning. After fixing breakfast on the camp stove, they pulled the garage door up and rolled the car out into the sunshine where they could see what they were doing. Between the countless trips to C.D.'s basement for tools and materials, extra time spent jury-rigging incorrect parts until they fit, and finally bringing the battery to a full charge, the Sun was already low in the sky by the time they finished.

"This is it." Fred held the key in his hand, fingering the old Chevrolet logo on the key chain. Carol had given it to him years ago, and the enameling—not to mention the once shiny silver plating—had all but worn off. He slipped the key into the ignition on the dashboard and, placing his foot firmly on the gas pedal, gave it a sharp turn. The starter cranked loudly, but ineffectively, as he held it for nearly half a minute.

He released the key, pressed the accelerator a few times, then tried again as he continued to pump the gas pedal softly.

"Careful," C.D. warned. "Not too much."

"Hey, I know what I'm doing."

He was about to let go of the ignition when it caught. Weak and chugging comically like in some cartoon, the sputtering motor kept turning over for nearly a full minute before finally stalling out. The dense exhaust that had poured from the tailpipe at the attempt wafted in small clouds over the garage. Quiet once more, they heard the barking of a dog roused by what must have been, to it and probably anybody else within earshot, an unfamiliar and intrusive noise.

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He turned off the ignition, pumped the gas again, and said, "This'll do it. This time for sure."

The engine caught almost immediately. It idled roughly, sending an occasional loud *pop!* out the back, but did not die this time. He pushed in the clutch, put the Chevy in first, and started rolling it slowly toward the street.

"Yes!" Ecstatic, C.D. hopped in next to his friend and slammed the door. "Where we going, boss?"

"Hold your horses, will you?" Grinning nearly as broadly as C.D., Ed bought the car to a stop at the end of the short driveway and set the brake, then pressed the gas several times, revving the engine higher and higher. Each time he did that the sound from beneath the Chevy's hood became a bit smoother, a bit more resonant. "Look, I haven't driven this thing anywhere in . . ." His voice trailed off as he tried to remember. "My God, I think Paul was still in medical school. Anyway," he said, looking up into the late afternoon sky, "it'll be dark before long. When I take her out for the first time, I want everyone to see her in the daylight."

"I don't blame you, pal." C.D. drummed his hands excitedly on the dash. "*Yes!* I don't blame you one bit."

They continued to sit in the '57 as Ed let the motor run. Occasionally he'd rev the engine a bit and they'd listen intently to the steady purr of the motor. The deep, rich sound, so alien to the high-tech, plugged-in world of their neighbors, drifted unchallenged by any other man-made noise out over the homes of Dutch Elm Acres.

To both men, the sound was just about the sweetest thing they'd heard in decades.

"Ed, honey. Come on, get up."

He woke himself as best he could at the insistent shaking at his shoulder, then rolled stiffly over and looked up at his wife through eyes that simply did not yet wish to focus in the dim glow of the Coleman lantern she carried. Not awake enough to quite know where he was—or, for that matter, *when* it was—he glanced at the clock on the nightstand, staring dumbly at the darkened face until he realized it was the power outage and not his eyes that refused to let him see the familiar green digits.

"What . . . time is it?" His voice croaked, and he knew before she answered that only a handful of hours could have passed since they had finally turned in after getting the Chevy running. They'd spent too much time listening to the AM radio, catching up on the news from the rest of the world. None of it had been very good.

"It's after midnight. Honey, you have to get up. Jason's here." It was the look on her face more than her words that brought him fully awake. Something was very wrong.

"Be right there," he said, sending her back to take care of their uninvited guests. His pants were still on the floor where he'd dropped them before crawling into bed, and he'd slept in his shirt, so getting dressed took only a few moments. His shoes were nowhere in sight and, assuming he must have left them in the living room, he padded barefoot and sock-

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less down the hall.

That his neighbor was in a sad state was apparent the moment he entered the kitchen. Jason's usually perfect artificial hair was a mess, his designer clothing disheveled and mismatched. The man's face was drawn, and there were dark circles under his eyes, accentuated by the harsh shadows cast by the lantern. He gripped a coffee mug in hands that shook visibly. Brittany sat nervously in the chair to his left, her own coffee untouched in front of her, and had her arms looped tightly around her husband's elbow although he didn't seem to be aware that she was even there. Her eyes were red from crying.

"Jason?" Ed sat across from him and accepted the steaming mug Carol offered. "Are you all right?"

The man, seemingly on the verge of tears, stared at the table top and said nothing.

"He needs your help," Brittany pleaded. "Please. I'm worried about him."

The fear in her voice made it difficult to be angry "What is it, Jace?" Ed touched his arm. "What is it? What can we do?"

He looked up, his eyes bloodshot, and swallowed several times before responding. "I have to get . . . get online." His voice quavered badly and his eyes blinked rapidly. Was he on something? "Everything I have . . . Everything I am depends on it, Ed!"

"Yes, but I don't know what I can—"

"The car!" He pounded a hand flat on the table, spilling his coffee and sending Brittany into tears. "I . . . I'm sorry . . . but I saw that you got it running. Maybe . . . if you drove me outside the affected area—can you make it to upstate New York, or maybe eastern Pennsylvania? The interstates are deserted." His voice still shook, but a certain desperate excitement crept into his words that was unmistakable as his eyes widened and he began to talk faster. "I can link in if only I can get somewhere outside Connecticut!"

"With what, Jace? You just going to walk into someone's house or office and start using their stuff? Come on, I imagine everything's tied up for hundreds of miles outside the affected radius here in the east, with people doing their best just to help take care of us and what's happening here. Don't you think?" He leaned back in his chair and allowed himself a sip of coffee, hoping the nonchalant gesture would help to relax the man—not to mention his distraught wife. Why did they always come to him asking for help or advice? What did they think he knew that they didn't?

Jason almost smiled then, his eyes darting erratically. He pointed out the open window to the neighboring houses. "Brandon! He's got a brand new Mac 99 in his basement. It came in a week or two before the satellite blew, but he hadn't had a chance to get it hooked in to his system yet. It's still in the box, not even opened, in the original packing!"

Carol put her hand on his shoulder as she leaned over the table to wipe up the spilled coffee with a dish towel. "But it won't be in any better shape than anything else, will it?"

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"But it might!" He was on his feet, swaying unsteadily in a way that convinced Ed now that he had taken too much of *something*. "They said it yesterday on the broadcast! They're finding a lot of stuff still in boxes that made it through OK because of the packing."

"That's *not* what they said, Jace," Brittany put in. The tears still flowed down her cheeks, but she spoke the words clearly, precisely, as though they had already had this discussion several times before coming here. She regarded Ed, explaining, "They said that some equipment was turning up that hadn't been affected. But it was mostly in warehouses and storage rooms with unopened boxes and crates that had been stacked several deep. A *few*," she emphasized, "in warehouses packed with *hundreds*."

Jason looked around the room, desperately searching each face for signs of some kind of support. "But it's a *shot!*"

"All right, then," Ed considered. "Assuming Brandon's new computer is one of the lucky ones, and assuming the car has enough gas to make it far enough to reach an unaffected area, can you get it on-line? What exactly do you need?"

"I just need a telephone, and a power source." Jason's eyes brightened hopefully, and he leaned forward on the table next to his wife. For the first time since entering the kitchen, the man looked a bit less frantic, maybe even a little more controlled. "I can't go virtual, not without going through my own node, but I have enough account contacts to establish a basic set-up node in the first functional motel room we can find." He stopped, almost holding his breath as he waited for Ed's answer. "I'll pay you. Enough to get your old car fixed up any way you like."

Ed waved his hand to dismiss the offer. The last thing he wanted was Jason's money. But as he considered his request he glanced at Carol and, seeing the look of compassion in her eyes for their despondent neighbor, he actually found himself feeling a bit sorry for the disagreeable man. Would it be so awful to do a good thing for a bad neighbor? That was exactly the kind of attitude, after all, that he found lacking in people like Jason and his ilk. Besides, having complained about it for years, he couldn't very well act the same way, now could he?

He let out a long, slow sigh. "Brandon's agreed to give you the computer?"

Apparently thinking that Ed was softening, a grin appeared on Jason's face. "Of course he'll agree! He wants back on-line, too, but he doesn't have the accounts to set up an out-of-state node. Once I take care of Kishuri Blankenberg, he can use my node to conduct any business he wants. He couldn't refuse."

Five minutes later, standing on Brandon and Heather's front lawn, their neighbor was anything but agreeable in matters regarding his computer. The discussion—if you could truly call it that—was heated from the beginning when Brandon had refused to let Jason inside. From the tone of the argument, it was clear that Jason had not bothered to run his

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idea past Brandon before he came begging for the use of the Chevy in the dark of night.

"I don't *believe* you!" Jason was screaming through the screen door. "I extend you an opportunity to get back on-line, I even offer you the use of my personal node, and you're saying no?"

"Look, Jace. I appreciate the offer, I really do." The man was trying to be nice, but was clearly losing patience. "But I just don't need back on as desperately as you do. I can afford to wait a few weeks till they get things restored around here. And when they do, I'm going to need a working system. My old system is just as fried as yours, and can you imagine what the chances are going to be of anything else being available? I'm sorry, but I'm not even taking the new one out of the box till the phones and power are back. I just won't risk it."

Jason grabbed the handle of the screen door and rattled it violently, trying to get inside. "Damnit Brandon! I've got to have it!" Brandon stood back, startled by the man's sudden burst of anger.

"Jace, please. . . ." Brittany, more unnerved and upset than ever at what her husband was going through, tugged at his jacket sleeve. "Let's just go home. Let's leave them alone."

"Goddamnit! Why don't you leave *me* alone!" He jerked his arm free of her grasp and pushed her forcefully, sending her stumbling backward to land heavily on the walkway.

"Jason! That's enough!" Ed was halfway to the front steps when Jason fumbled in his jacket and pulled a dark object out of his belt. In the hard light of the lantern, Ed couldn't identify the thing at first. The he realized what it was: a gun.

"No," Jason said. He leveled the weapon in Brandon's direction. Jason was more agitated than ever, but the gun—a lightweight plastic Glock 9mm—was steady and unmoving. When he spoke, his voice was just as steady. "I want the computer. I need it. I'm getting it." Apparently confident that he was now in control, he ignored the others. He turned back to the front door where both Brandon and Heather stood in frozen shock. He reached for the door, rattling the handle again. "I'm taking the Mac, Brandon. Let me in."

Neither man moved.

"Let me in!" He punched at the lower screen panel, tearing it loose, and reached in to undo the lock on the handle, then jerked the door itself open so hard that it slammed back against the front of the house.

"Jason, no!" The loud crash of the breaking screen door finally seemed to snap Brandon from his trance. He put his hand out in a weak attempt to stop the man from entering his house. "Please, don't do this."

"Move!"

The moment Jason shouted, it seemed to make everything that happened next flow together as a single action. He swung the gun around menacingly, moving forward. Brandon jumped back, trying to slam the heavy main door.

Jason tried to push his way in, but lost his balance. The Glock discharged into the edge of the door,

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sending a burst of wooden splinters flying everywhere.

Heather screamed once, then again. Brandon was thrown forcibly backward by the bullet's impact and fell, disappearing inside. Carol cried out and started toward the door, but Ed put his arm out to stop her before she could get any closer. Brittany, still on the sidewalk and unable to take any more, turned to Ed with such a confused look on her face that he wondered if she even comprehended what had happened.

And then, for a brief instant, there was no sound, and no one moved, and no one did anything, and Jason just stood there and stared dumbly at the man lying in the entranceway. Heather leaned over him amid the pieces of the shattered door. She looked up, mouth open, eyes wide at the man standing above her, the gun now hanging limply at his side.

"Oh, God. Oh, God!" Heather was suddenly frantic. Her voice gasped fitfully as she wiped her hands over and over again at the blood oozing from the upper right side of Brandon's chest, as though her desperate actions could somehow make the spreading stain go away. "Brandon, *please*, get up. Oh God, oh God, oh God."

Jason looked stupidly at the gun in his hand, then at his neighbor lying in the pool of blood at his feet—the pool of blood that he had caused. Then back at the gun as though he couldn't bring himself to connect the two. He stammered uselessly. Whatever he said became immediately drowned out by the distraught woman. He held the gun so loosely and offered so little protest when Ed took it from him, that it was a wonder he hadn't dropped the weapon on the porch.

While Carol gently pulled Heather away from her husband, Ed knelt down at the man's side, ignoring the blood soaking into the knees of his pants. "He's alive," he said over his shoulder. "Carol, go get C.D."

He felt light-headed for a moment, then the feeling passed. Slowly and deliberately, he reached into his pocket, pulled out the tin of pills, and fished one out, chewing it carefully as if it were the most important thing in the world. He looked up to see Carol, her face frozen with concern.

"I'm all right," he said. "Hurry up and get C.D., and tell him to meet me in the garage." As she hurried across the lawn he saw that the Powells and some of the other neighbors had gathered out front.

"Give me a hand here!"

The Powells helped Ed place Brandon onto a blue tarp they pulled out of the backyard where it had covered the kids' bicycles. Ed rushed home and took his time starting up the Chevy. He didn't want to flood it and he didn't want to wear down the fragile battery, and he was sure he was going to do both. By the time he pulled into Brandon's driveway, C.D. was already there.

The Powells helped them lift the tarp and place Brandon in the back of the station wagon. C.D. was hard at work. He had stripped Brandon's shirt from him and was jamming a towel against the wound.

"Get his feet up," he said as the

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Powells drew back from the tailgate. "He's in shock."

They shoved a plastic milk crate full of junk under Brandon's heels, then closed the gate. Ed looked around and saw Carol holding Heather in a bear hug. Neither woman moved. He hesitated, unsure of what to do. He didn't want both of them up front with him, but he sure as hell didn't want Heather in the back seat where she could see what C.D. was doing to her husband.

Then Heather broke loose and rushed to the car. Ed reached over and opened the passenger door to let them in. Heather sobbed softly but uncontrollably, her head buried in Carol's shoulder.

"I heard the shot," C.D. said once they were underway. "Damn near broke my neck jumping out of bed. I've been wondering how long it would be before Jason nailed someone."

"Put a sock in it, will you, C.D.?" Carol snapped at him without turning.

A brief pause, then, "Sorry." He sounded like he meant it.

Ed turned his attention to the road in front of them. Maneuvering around all the derelict cars was harder than he thought it would be. The old car was nothing like he remembered—and nothing like the tight little electric things he was used to driving. The steering wheel felt loose and sluggish, and the Chevy heaved like a boat being pushed around in a stiff wind.

He navigated his way through the narrow lanes of Dutch Elm Acres as slowly as he could and as quickly as he could, not once letting the knowledge slip from his mind that it would take only one mistake—a corner taken too fast, a turn misjudged, or a slight oversteering on his part—to bring them to a halt and end Brandon's life right there. He cursed the developers who had laid out the roads in the subdivision. What had once seemed cozy and efficient now seemed as tight as a noose.

Things didn't get any better once they got out on the highway and headed toward town. There weren't any streetlights, and the road disappeared into a darkness that lay thick across the land. The sky was overcast, without moon or stars to hint at what lay beyond the narrow spread of the headlights.

"Where are we going?" C.D. asked.

"You tell me," Ed said. "The mailman who came through on Tuesday said the National Guard was set up in Middletown. Do you suppose there's anyone who can help us here in Colchester, or do we have to go all the way up there?"

"Middletown?" Carol growled. "That's half an hour away."

"Yeah, I know," C.D. said, "but we could spend an hour or more looking for help in Colchester."

"Middletown it is," Ed said, easing out onto the highway and turning left.

They didn't run into trouble until they passed through the center of town. Disabled vehicles filled the roads. The Chinese bomb had gone off in the middle of the day, when traffic was fairly heavy. A line of cars still sat at the dead traffic light at Route 16. At some places the cars on opposite sides of the road were so close together that

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Ed had to slow down and actually pass them on the narrow shoulder.

His hands were shaking and his legs ached from the tight control he tried to keep over the old Chevy. A big part of him wanted to pull over and take another heart pill, but not because he needed to. He just wanted to take something that would make him feel safe and secure.

God, he hated being old. It was only in moments like this that he really felt it. His eyes had trouble focusing and his mouth was as dry as the desert.

The worst moment came on the far side of town as they headed down the long hill towards Marlborough. The Chevy was picking up speed as it rolled along—more than he wanted—and he tried to brake, but the momentum was more than he was used to. Hard steel and rubber, instead of aluminum and plastic, made a big difference.

They came around a curve at the foot of the hill and saw the accident scene at the last minute. A big delivery truck had collided with a smaller commuter car, one of those tiny three-wheeled things that ran about forty miles on a charge and could be stored in a broom closet. As they rushed towards it, Ed realized it must have been there since the lights went out.

There was barely enough time to swerve around it. The car left the road and swung wildly through the soft dirt beyond the shoulder. They bounced and jolted and shook. Ed felt the steering wheel come to life in his hands, trying to tear itself loose, and his heart began to sink—not a clinical symptom, but an emotional one. He wanted to cry. He wanted to tell Brandon he was sorry about getting him killed. He wanted to go home.

Then he drew a deep breath, tightened his grip on the wheel, and fought back. He gave the engine more gas, spinning the wheels noisily in the sand and loose gravel behind him. The Chevy fishtailed slightly, then swung obediently back toward the road.

Carol let out a short yelp, long after it was necessary. C.D. moaned theatrically in the back. Heather sobbed louder. Ed felt suddenly crowded in his pride and joy of an antique car, but the closeness gave him renewed strength. At least with the two women in the front seat, he wasn't sliding around all over the place.

They regained the highway and the Chevy drew back into line, losing the will to resist.

"The next time you're going to do that, would you mind giving me some kind of warning?" C.D. said.

"I'll keep it in mind." Ed raised an eyebrow at C.D. in the rearview mirror. "But those sudden surprises keep things more interesting, don't you think?"

"No need to evac him into Hartford or one of the larger centers," the National Guard medic said as he escorted them through the small crowd to their car. The Sun had just cleared the hills on the other side of the Connecticut River, and cast long shadows ahead of them as they walked.

The man was older than most of the other medical personnel they had

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talked to here—probably only a few years younger than he was, in fact—and looked extremely uncomfortable and out of place in the fresh uniform he wore. Clearly a civilian, it occurred to Ed that he wore the uniform as much as a badge of authority as anything else, and judging from the pandemonium he and C.D. had found at the small clinic-turned-field hospital, he could easily see the need. People milled about everywhere among a sea of dull green government vehicles, temporary shelters and power generators that had turned the small-town clinic into a virtual oasis of modern services. From what they had seen, most of the injuries were minor, and most had been caused inadvertently by people simply trying to cope with the situation: cuts and scrapes, some broken bones caused by falls, and a lot of burns from those trying to cook with real fire for the first time in years. Most of these were being cared for outside while the precious space inside the facility was being held for other injuries, more serious in nature, that were becoming more common as patience and resources wore thin. Like Brandon. Arguments, fist fights and, inevitably, more shooting incidents were keeping the medical personnel here busier with each passing day.

"I want to keep him here till . . . make it next Thursday just to be on the safe side," the doctor was saying as he walked, scanning the readout of a handheld medical notepad. He was exhausted and rubbed repeatedly at his eyes as he spoke, but seemed more burdened by the nature of his more recent cases than the caseload itself. "The bullet smashed part of his upper rib cage and did a good bit of tissue damage. He lost a lot of blood, too, but it could have been a lot worse if the door hadn't slowed the bullet down some before it hit him. He'll be OK, but he was lucky, and luck's something we haven't seen much around here. He's the fourth gunshot victim I've done since the weekend."

"And his wife?" Ed asked.

"She's fine. And I've already arranged a place for her to stay in town."

Ed shook his head wistfully. "If this is what it's like at small facilities like this one, I can't imagine what's happening in Hartford or Bridgeport."

"Bridgeport?" C.D. snorted, picking up his friend's train of thought. "How about New York? Or Boston? Geez, can you imagine—"

"I'd rather not." Something in the sound of the doctor's voice told him the man was glad to be in Middletown, and not one of the major metro areas.

"Well, I'm just glad we got him here in time to do something." An armed guardsman stood at the back of the Chevy, and Ed could see that the gasoline and supplies the National Guard commander had promised him earlier had already been loaded inside. Bright orange stickers—temporary road use permits—had been affixed to the windshield and tailgate window. Carol was sound asleep, curled up on the back seat. He tossed the ball of blood-soaked blankets he carried into the back before closing the tailgate as quietly as he could to avoid waking her.

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The doctor stood staring at the car. "This is yours? This is what you brought him here in? I said a moment ago that your friend was lucky, but . . ." He paused, running a hand appreciatively along one of the polished fenders. "I'll tell you what, Mr. Ronson, take good care of this beautiful machine. You may need it."

"How's that?"

"Well," he said, not taking his eyes off the car, "we've been able to follow things pretty well, thanks to everything the Guard has set up for us here. Word out of Washington is that the Chinese nuke that went off might not have been an accident."

"Say what?" C.D. was incredulous. "They think it was terrorists? I knew it. Hey, what did I tell you, Eddie?"

"No." The doctor shook his head. "Not unless there's such a thing as economic terrorism. They seem to think that the way it happened—altitude, the timing of the orbital path, the blast coming at a time with the least amount of air traffic and such—was too coincidental to be random." He shrugged. "More than a few are starting to say it was done deliberately in an effort to wreck our economy."

"That's a bunch of crap."

"Why not?" Ed countered sourly. "Makes perfect sense to me." He opened the front door of the wagon, then extended his hand. "Thanks for all you've done, Doctor. And thank your commander again, too, for the stickers and provisions. Everyone in the neighborhood will be glad to get the supplies."

The sign read *Hammonasset Beach State Park—5 Miles.*

The drive from his son's clinic in Old Saybrook, like the trip down from Colchester, had been uneventful. There were more derelict vehicles here on I-95 than there had been driving down Route 11, but most had been allowed to coast onto the wide shoulders when the EMP had killed their power systems. They had kept their speed low—partly because of the numerous abandoned vehicles, but mostly because they simply were in no hurry—but even at that the only vehicles passing them had been National Guard trucks and transports, or cars belonging to state or local police. One of the state cops had stopped them, but only to make sure they were all right and not on an emergency run of some type. The man had been quite friendly, and even took a few extra moments to retrieve a chocolate bar from his cruiser and give it to the kids before heading back on his way south.

As Ed and Carol had suspected, Paul and Joanie had their hands full at the clinic in Old Saybrook and were only too glad to let the kids spend the day with them. The two children, likewise, were thrilled with the idea of going to the beach, and giggled and sang happily in the back seat with their Grandma.

When they had risen that day to a hot breakfast in the National Guard mess tent, Ed had set down his coffee, looked C.D. in the eye, and said: "I'm taking your advice about the beach. As soon as we get back home, the three of us are going to pack blankets and food and charcoal and some icy

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wieners from your freezer and anything else we need into that car, then after a quick stop in Old Saybrook to say 'hi' to Paul and Joanie, we take the kids and head straight down I-95. And we're not stopping until we get to Hammonasset."

He wiped the back of a hand over his eyes. "God, C.D., they're getting big. Won't be long before they won't want to spend time with Grandma and Grandpap anymore." He paused again, a broad grin spreading across his face. "And then I'm going to chase seagulls up and down the beach all day long with them, that's what I'm going to do. To hell with Jason and Brandon . . . and to hell with the Chinese and their stupid satellite, too, for that matter."

"I'm with you, buddy," C.D. said. "Gunshots make me nervous. Besides, I'm not sure how I feel about going home just yet."

"It's not just that, C.D. It's a bunch of things. I'm beginning to get used to the peace and quiet. And if I'm going to be living out of a campsite, I might as well enjoy it. You were right the other night. It's been too long since we got out and got surprised."

"That's what I was telling you. Just because we're a couple of old freaks doesn't mean we can't hit the road again. School's out forever."

"There's something about being a Boomer—even a Gerry Boomer like you and me—that means you have to go out once in a while and get your head together. After that, who knows what we'll do. Maybe when they put things back together again, we'll see if we can make sure they do it right."

And now, with the afternoon Sun shining down on them, they were carrying out Ed's plan. With Carol enraptured in play with the children, Ed and C.D. had spent most of the trip just listening to them and answering their unending eager questions about everything from satellites to seashells, and had spoken little to each other except to comment on the beauty of the day or something that caught their attention as they drove.

At one point, however, when Carol and the kids seemed to be ignoring them as they played, C.D. turned and asked bluntly, his voice low, "You weren't serious, were you? What you said to the doctor earlier, I mean. You don't really buy this crap about the nuke being set off deliberately, do you?"

"Why the hell not? I'm not the least bit surprised to learn that someone on the other side of the world might be so wrapped up in his little corporate higher-faster-better mentality that they'd pull something like this. It's just like Jason and his Glock, except that a whole bunch of *their* Jasons got together and wanted to do something bigger. Why should we be so conceited as to think that we're the only country in the world that let a whole generation of Jasons and Brandons take over?" He chuckled softly, sadly at the thought. "You know, I'll bet there's some guy our age right now sitting over in Japan, or Korea, or somewhere in the E.C.—whatever the hell country it was that caused all this—and he's sitting there shaking his head over the craziness of what *their* version of the younger genera-

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tion considers normal."

C.D. looked at him, then pointed into the back seat where Carol was now reading an ancient, frayed copy of "Curious George" to the kids. "But they didn't all turn out bad," he said. "Paul and Joanie turned out fine. And they did just fine with these two."

"Thanks." Ed reached over and patted his friend warmly on the shoulder, and let out a long sigh. "You know, we don't have a future, but they do." He nodded toward the back of the car. "And I hope it's something more than getting plugged into a virtual video reality something or other where all you do is make virtual money for virtual corporations. Maybe now they won't. Maybe after all this, maybe some of the real things will become important to them again."

"In other words: Maybe the Chinese, or whoever, did us—did them—a big favor."

"Yeah." A glint of reflected sunlight from the rearview mirror caught his eye, and as he stared into the mirror, he realized that there were several vehicles coming up in the distance. "Company coming," he said, pointing to the mirror. "Probably another National Guard convoy running supplies to New Haven."

C.D. turned around in the seat and looked out the back window. "Yeah, or returning empty."

Ed let the Chevy coast until his speed was low enough to pull over and allow the convoy to safely pass. C.D. played with the AM radio, trying to fine-tune a classic rock station he had managed to pick up out of Cleveland.

But as the traffic drew nearer it became clear that they weren't National Guard, or any other official vehicles for that matter, but rather a scattered line of older cars.

Fords and Chevrolets, big Chryslers with tail fins and Buicks with seemingly more chrome than glass, even a pair of noisy VW Beetles.

At the wheel of each was someone from Ed, Carol and C.D.'s generation. Baby Boomer survivors of the '60s, '70s, and '80s; all, like the three of them, refusing to get old, refusing to join the plugged-in generation that followed.

And in each car were the children, waving gleefully at them as they passed. All of them joyous and excited for that rarest of combinations: no school, their parents engrossed in Important Adult Stuff, and, most important of all, an offer from their grandparents to spirit them away for a delightful day of fun and being spoiled.

C.D. looked up with a grin at the sight just as the radio shook with the opening bars of an old song that sent a chill up Ed's spine: "Rock and Roll Never Forgets."

Ed waited a moment for an opening in the line of cars, then he put the wagon into gear, pulled onto the highway, and, with the chords and chorus echoing from the radio, joined the great parade down to the beach. ■

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The Green Mile, #1: The Two Dead Girls, Stephen King, Signet, $2.99, 92 pp. (ISBN: 0-451-19049-1).
The Green Mile, #2: The Mouse on the Mile, Stephen King, Signet, $2.99, 92 pp. (ISBN: 0-451-19052-1).
Dradin, in Love, Jeff VanderMeer, Buzzcity Press First Editions (P.O. Box 38190, Tallahassee, FL 32315), $9.95 ($11.50 direct from publisher), 106 pp. (ISBN: 0-9652200-0-1).
The Demon-Haunted World: Science as a Candle in the Dark, Carl Sagan, Random House, $25.95, 460 + xviii pp. (ISBN: 0-394- 53512-X).
Evolution Isn't What It Used to Be: The Augmented Animal and the Whole Wired World, Walter Truett Anderson, W. H. Freeman, $22.95, 197 + xxv pp. (ISBN: 0-7167-2998-9).
American Technological Sublime, David E. Nye, MIT Press, $16, 362 + xxii (ISBN: 0-262-64034-1) (hardbound ISBN: 0-262-14056-X).

The recent change in *Analog*'s publication schedule has given me a longer than usual gap between column deadlines. This is a bit of a relief, for in the past I have generally managed to stay two to four weeks ahead of schedule. In the past year or two, new computer toys and other factors have bitten seriously into my lead, and I am quite happy to have been given back my slack. I'll use some of it to give you a few columns with more (albeit shorter) reviews, beginning with: **Murder in the Solid State**. Wil McCarthy's third novel gives us a US that has come to be dominated by its already-growing elderly component. Meet the Gray Party, which wants life just as sane, safe, and sensible as possible. It doesn't run the country, but it lobbies hard enough and the crime rate has in fact dropped into the basement, largely because of the Vandegroot Molecular Sniffer, a nanotech whizbang that can reliably detect very small traces of

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drugs, explosives, and other contraband and has become ubiquitous. Cops even carry them in their patrol cars to scan whole neighborhoods; one whiff, and instant warrant, instant search and seizure. No wonder the crime rate's down.

Otto Vandegroot, whose name the Sniffer bears, is something else. He took several ideas from the developing field of nanotechnology, put them together to get his gadget, and then patented the result so broadly that ever since he has been in control of the field, a roadblock and a curse.

Now meet young nanotechnologist David Sanger. Looking for a nanotech lubricant, he came up with MOCLU, a substance that instantly jams any and all nanotech machinery. He has better things in his kit, but when he arrives at a nanotech conference to discuss them, Vandegroot attacks him with a sword. David triumphs and goes to bed, only to be awakened by the cops: Vandegroot is dead, murdered; David is the obvious suspect.

He manages to demonstrate his innocence with the aid of more Gray-sponsored security apparatus. But when he gets home to Philadelphia, he finds his lab destroyed. Goons attack him and shoot down his best friend and lawyer. His mentor—who turns out to be a Chinese spy—is murdered. The goons wear strange police uniforms. His girlfriend is suddenly less distant. He's on the run, desperate to save his own life and reconstruct everything he lost with his lab, including MOCLU. And of course, in the end, he triumphs, though not without a final twist or two in his road.

Murder in the Solid State is eminently readable and blessed by what strikes me as a reasonable extrapolation of current politics and a very reasonable consideration of some of the sociopolitical impacts inherent in nanotechnology. More important to nitpickers, McCarthy shows that he knows what he is talking about by not committing such blunders as equating DNA and protein. To many other writers, the science and engineering are just bafflegab to snow the readers; McCarthy knows his onions—but then, he *is* an aerospace engineer.

Perhaps he gained it from spending so much time translating Stanislaw Lem's work from Polish to English. Perhaps it's what drew him to Lem. Either way, Michael Kandel has the gift of strangeness. We saw it in *Strange Invasion* (reviewed here in April 1990), *In Between Dragons* (reviewed here in January 1991), and *Captain Jack Zodiac* (reviewed here in June 1992). Now here's another zany, clever, intensely allegorical morality play: **Panda Ray,** in which young Christopher Zimmerman gets into trouble for telling lies in school about his visits to Shakespeare, dinosaurs, strange worlds, and more. The rest of the family knows Christopher isn't lying, for they are either mutants or aliens. But he should still know better. So should Gramps, who has taken Christopher off on far too many forbidden jaunts with the aid of a bathroom redone with quasiperiodic Penrose tiling. (Gramps, by the way, shares a bit of the spirit of Papa Schimmelhorn.)

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Mother is stern, controlling, nasty. For his punishment, Christopher will be scooped out, bereft not only of his psi but of his omicron and upsilon as well. Then he will be normal, just like his older brother.

Seeking help, Christopher flees to Gramps, who once more takes him out upon the five multiversal seas of Is, Was, Will Be, If, and Isn't with Mother in pursuit, hell-bent on either scooping or killing her son. After suitable adventures, they at last come to Panda Ray, who solves problems at the cost of change. And in the end....

Well, in the end Christopher is a very well-behaved youngster, just like his brother. He has grown up a bit, and Kandel's point is that there is more than one way to do that. One can lose one's self, or one can keep one's self, be controlled by others or be self-controlled.

It has long been a landmark in a science fiction writer's career when a publisher decides it is time to publish a collection of his or her best short fiction. Once upon a time, the publishers who did such things were mass market paperback houses. Today they are largely (not exclusively) small presses that market to the dedicated SF audience. NESFA Press is a good example; it collects the work of Boskone guests of honor. So is Tachyon Publications, as it demonstrates with **Standard Candles: The Best Short Fiction of Jack McDevitt**.

McDevitt has done a number of very interesting novels, of which the last two were *The Engines of God* (reviewed here in April 1995) and *Ancient Shores* (reviewed here in July 1996). The short fiction has been accumulating for years—clever, insightful, often marked by oddly inconclusive endings, and quite neglected in the sense of fame, fortune, and awards. Two of the sixteen stories here thus ring of personal relevance: The title story concerns an astronomer who, though he has never flared as brightly as a nova has had a long and glowing career; "The Fort Moxie Branch" offers the notion of a future library that preserves the work of neglected writers and materializes rather like an Isher weapons shop to offer affirmation when a writer needs it most.

"Auld Lang Boom" is the butterfly whose wings cause hurricanes—every time two old friends meet, something awful happens in the world; the surviving heir of one, reading the diary left behind, gets quite spooked. "Cryptic" is the tale of closing down a SETI operation and finding in the files a computer disk with frightening implications. "Time Travelers Never Die" plays fast and loose with continuity when even after death a time traveler is able to maintain contact with his lover. "The Jersey Rifle" concerns the discovery of the world's greatest chess player, an unassuming druggist who can beat anyone. And more.

Worth noting: Tachyon brought out in 1995 the complete version of Stanley G. Weinbaum's classic *The Black Flame,* based on a newly discovered manuscript (limited edition hardcover, $26; if you want the deluxe editions, priced higher, contact Tachyon

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for availability and price).

For 1996, Tachyon offers *Lot's Children,* containing two Ward Moore stories, "Lot" and "Lot's Daughter," of which introducer Michael Swanwick says, "Right at the very beginning of the atomic era, Moore *nailed* the nuclear holocaust survival story. Nobody has ever told it more convincingly" (limited paperback edition, 300 copies, $10; deluxe hardbound, autographed by Swanwick, 100 copies, $21, plus $2 s&h per copy). Also for 1996, Tachyon promises *Over the River and Through the Woods: The Best Short Fiction of Clifford D. Simak* and *The Mortal Immortal: The Complete Supernatural Short Stories of Mary Shelley.* Watch for them.

How long has it been since you last saw a mass-market paperback for under $3? Well, you can again—if you're willing to pay the price.

That is, if you're willing to pay for a book that is only a sixth of a novel. I'm talking about Stephen King's latest, the first of six installments of **The Green Mile**. The idea, as King reveals in his foreword, is to see whether chapbook serialization can work today as it did in Charles Dickens's time, when folks thronged the wharf to meet the ship bringing the latest installment from England.

We're talking bookstores, not wharfs, here, but the question is the same: will people fall hard enough in love with installment #1 to line up for #2? They do it for movies, they do it for TV shows, but will they do it for books? And just in case they won't, the publishers have included a contest: Answer the question about Mr. Jingles, and win!

Who's Mr. Jingles? That I won't tell you. But I can say a good deal about installment #1, **The Two Dead Girls,** without fear of giving away the ending (King says he doesn't know the ending himself, yet). The scene is a rural prison, 1932. The narrator is the retired supervisor of Death Row, who has walked many men and women down that strip of green linoleum called "The Green Mile" to "Old Sparky," the electric chair. He's a sympathetic fellow with aches and pains of his own, some of them personal, some personnel. And one day John Coffey arrives in chains. John's a big fellow, but he seems still dazed months after he was caught with the bloody bodies of twin girls in his arms, saying, "I couldn't help it. I tried to take it back, but it was too late."

Note that the hounds that tracked John Coffey down dithered at a fork in his trail; the posse chose one branch and ignored the other. Note Percy Wetmore, the politically connected nasty twit of a Death Row guard who craves his hand on Old Sparky's switch. Note "Wild Bill," the new prisoner about to arrive as this installment closes. Note the narrator's promises that Percy and Bill are going to cause trouble. And ask yourself, what went down the other branch of John Coffey's trail? What was it John Coffey tried to take back? Indeed—knowing the stories Stephen King has written before—what dark thing is loose on the unsuspecting world beyond the narrow

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confines of the Green Mile?

In other words, what we have here is a nice, gripping opener for a novel of suspense and horror. If the rest of the book were attached to its rear, you would keep on reading with nary a pause. Is it gripping enough to make you shell out $2.99 five more times? Only you can say; it adds up to an expensive paperback but an economical hardbound, and it has the advantage that you can start sharing before you finish the whole thing.

Hardly had I written the above than Lo, in my rusting mailbox what should appear but **The Green Mile, #2: The Mouse on the Mile**? This one is backfill, telling us of Mr. Jingles's arrival at Death Row and his strange behavior, quite as if he were waiting for the arrival of a certain prisoner, and filling us in even better on the nasty-twitness of Percy Wetmore. It ends with Wild Bill's chaotic arrival.

If it were the second segment of an in-one-chunk novel, you'd keep right on reading, and happily too. As a slim paperback, it prompts a thought something like, "I spent three bucks for this? Sheesh!" Indeed, I suspect that if readers skip this one and go directly from #1 to #3, they won't have missed a thing of importance. (Of course, I haven't seen #3 yet.)

In other words, if #1 didn't hook you, this one won't do the job.

Jeff VanderMeer's **Dradin, in Love**, the first title from Buzzcity Press First Editions, has a baroque style that reminds of early Jack Vance and a setting—the city of Ambergris, of palpable age and decadence, scattered with the burned-out glories of a technological past—that echoes of Gene Wolfe. Of course, VanderMeer is neither Vance nor Wolfe and his tale is not one they might have told: the missionary Dradin has returned from failure in the jungle; looking up, he sees a woman in a window and falls instantly in love; he rushes off to find her a gift, and when he returns, a dwarf offers to be his intermediary, for a price.

Jaded fellow that I am, I immediately suspected the dwarf's motives. What came to pass in due time was a surprise only in its details. Yet the journey there—the city, the reminiscences, the murderous Festival of the Freshwater Squid—was inventive enough to hold my attention and make me say that if a VanderMeer book shows up on your bookstore shelves, give it a close look. He won't be to everyone's taste, but those who like baroque decadence will like him.

Carl Sagan is a scientist with a remarkable gift for exposition and just as remarkable a dedication to reaching the public. He wants everyone to share his love of science, his sense of where it has come from, where it is going, and what it all means. Most of all, perhaps, he wishes to spread the scientist's regard for demonstrable truth, for reason and sense, in preference to superstition and other far-too-common beliefs held for no better reason than the voice of authority or because (as he quotes the theologian Meric Casaubon's 1668 book, *Of*

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Credulity and Incredulity) "anything that a large number of people believe must be true."

Such wishes have motivated many of Sagan's outreach activities, from books to television and even the Sunday supplements. Nowhere, however, do we see them more clearly than in his latest, **The Demon-Haunted World: Science as a Candle in the Dark**. In response to what he sees as "a growing danger to our society, the uncritical acceptance of New Age beliefs, pseudoscience, superstition, and fundamentalist zealotry" (from the puff sheet), he has written over the last few years a number of pieces for *Parade* magazine, *The Washington Post, The New York Times,* and other magazines, given talks, and taught what sounds like a fascinating course at Cornell. From this material, he has compiled a marvelous book that touts the value of skepticism and asking questions, of debate and diversity; debunks Atlantis, UFOs, channeling, crystal power, alien abduction, witchcraft, demons, and a great deal more; and tries to supply the reader with an effective baloney-detection kit.

The goal Sagan pursues here is as laudable as anyone could wish. That he pursues it with style and grace and a very human voice may be enough to win him another Pulitzer. Unfortunately, Casaubon's fallacy is as exceedingly widespread today as it was three centuries ago. Buy the book, read it, enjoy it—though I suspect many *Analog* readers may feel he's preaching to the choir—and *then* give your copy to the local high or middle school. And then be prepared to defend its presence on the school library's shelves. After all, that horrible word "demon" is in the title.

Walter Truett Anderson's theme in **Evolution Isn't What It Used to Be: The Augmented Animal and the Whole Wired World** is that "We are living in a [new] kind of world, a global bio-information society, which presents not only technological change but changing understanding of what kind of a world we inhabit and how it works." We now know a great deal about how living systems—from genes, cells, and bodies to ecosystems and biospheres—work, and we are learning more every day, aided by computers and an elaborate web of sensors—from microscopic to global in scale—that makes it ever easier to monitor the condition of ourselves and our world, and even to intervene at need. He devotes much of the book to an admirably complete, if often breathless and sometimes oversimplified, survey of what is going on in nanotechnology, genetic engineering, prostheses, agriculture, global climate change, and more. In the last quarter of the book, he gives us a thoughtfully holistic analysis of environmentalism, a critique of some of the more extreme environmentalists, and a statement that "Proper application of the information to the problems becomes the central challenge of our time" although we must be wary of both "a simple faith in an easy 'technological fix' [and] the equally simplistic rejection of technology."

Anderson says he has been an envi-

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ronmentalist for over 30 years. He is also a columnist and scholar, president of the American Division of the World Academy of Art and Science, and a very accessible analyst of what is happening in our world.

Historian David E. Nye, Professor and Chair at the Center for American Studies, Odense University, Denmark, studies the role of technology in American society. His latest book, **American Technological Sublime,** begins by defining the sublime as something with ancient roots but discovered in its modern form in eighteenth-century England, a sense of awe, terror, and humility in response to vast objects of nature such as mountains and lightning storms, a liberation from the small, rational, and safe. In the young United States, it soon shifted its focus from objects of nature (such as the Grand Canyon) to objects of technology (such as railroads, canals, steamboats, bridges, factories, skyscrapers, A-bombs, and moon rockets, all of which have drawn the requisite crowds and psychological reactions). He is thus talking about the sense of wonder so familiar to SF readers, and though he briefly mentions *Astounding* at only one point, his discourse must be of considerable interest to SF readers, writers, and analysts.

The keys to the technological sublime are size, sound, speed, and novelty. Technological structures that grab the public's attention are bigger, faster, and noisier, and each one is typically superseded by a newer one. It is thus fairly easy to see that the "American Technological Sublime" is American only by virtue of its glorification; the urge to build larger structures than our predecessors and then to stand in awe of what we have wrought has been with us since the days of Stonehenge and the pyramids. Nye's topic is only the latest expression of the same urge that built Europe's cathedrals.

What Nye does not discuss is the dilemma that arises when the old fades as it must into social context, comes to be taken for granted, and is *not* replaced by something newer and more impressive. I suspect that this is what we are suffering from now; the new technologies of our time (genetic engineering and computers) are marvelous enough, but they are small and quiet, without flash, and hence not sublime; they fail to enlist public enthusiasm in the same way as the old ones.

Nye spends more attention on the construction of the sublime experience. Once it was an experience to be sought by individuals trekking to visit some natural wonder. Later, as with the railroads, it was a community experience celebrated by parades in which every sector of society participated. A little later, as with the great bridges and skyscrapers, it came to be orchestrated by society's corporate and economic elite, with the public relegated to the role of spectators. Later still, it was developed in secret, with no semblance of consultation of the people, and then presented with a "Lo! Behold!" as if it were something magical, a style that was more than clear at the time of the 1939 World's

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Fair, well before it became *the* modern technological style with the nuclear bomb and the space program.

Nye puts a lot of the blame for the decline in the popularity of technology (and by extension, of SF) on the increased awareness of side-effect problems. That awareness was made inevitable in part by increased dominance of technology by corporations and their PR departments. That 1939 World's Fair was all bright and shiny image, all hype, with very nearly zero admission that there existed social problems in the world of the time, much less in the future utopia technology would construct. Of course the problems existed then and would continue to exist. No one should be surprised, and technology itself should be condemned much less than out-of-control image-mongers.

Nye also lays some blame on the decrease in public participation as the technologies became larger and more expensive, as decision-making moved up the socioeconomic scale, and as technological celebrations came to be designed from above rather than below. This too was visible in 1939; it remains visible today, when much criticism of technology has to do with public participation in decision-making. Yet perhaps here there is a sign of hope; one of the reasons why computers and the Internet are so wildly popular is that they restore the individual's ability to participate in the construction of the technology—writing programs, designing Web pages. The drawback, in the light of Nye's book, is the lack of the sublime—the Internet is quite awesome enough, but it *is* invisible. ■

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BRASS TACKS

Dear Dr. Schmidt,

First, I feel compelled to say; given that your editorial "Catch-Up Time" occurred in *Analog,* it is the weirdest thing I have ever read. I had to look at the cover of the magazine to make sure I didn't have the April issue. Don't get me wrong. I commend you for introducing some radical thinking about a serious problem. And I admire your courage to write this, as I expect that most of your readers will want to crucify you for it. (Well, it is the right month, if not issue, for that too.)

Though I am a [sic] environmentalist, I am convinced that not only is there no turning back from science and technology, but that our only hope of saving the planet from our stupidity and shortsighted greed is to sprint forward scientifically and technologically. Well, I do see one other solution—really big-time plagues coming really soon. Not too cool.

It is as if we have taken a running leap over a chasm whose width we do not know, and you are suggesting that we should introduce some drag because we are getting sick from looking down into the depths of the chasm as we sail over it.

I think I detect the same phenomena given a different expression going on with G. Harry Stine and his KISS principle. This guy must really be out of touch with computers. I mean, voice recognition coupled with AI will be the greatest simplification in computer/human interaction since high level languages. But as a technology, simple it is most emphatically not! Does he think virtual reality programs are simple? And nanotechnology, is that simple? Genetic engineering, simple? KISS? No, sorry, wrong. The future will be molded by technologies that are almost unfathomably complex.

Now what is the phenomena [sic] that I think links your thinking and Stine's? Age. I suspect that you two are getting too old to adapt and accept a future will be as it will be and not as you have wished it would be. Time to give it to the youngsters, I say. They are facing problems of incredible complexity, the solutions of which will require tools of equally incredible complexity derived from science and technology, most of which is not yet born. Please, do not handicap them with tired old thinking or wistful hankering for simpler times. It's far too late to be having second thoughts about a technologically driven society. It is far to dangerous to fool ourselves with simplistic solu-

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tions applied to oversimplified problem models.

ROBERT CARVER
Laurel Springs, NC

Your comments are interesting, but have remarkably little to do with me or the editorial to which you are ostensibly reacting.

I did not, for example, in any way advocate "turning back from science and technology" or "wistfully hanker for simpler times." If you should someday read my editorial carefully, *you'll discover that I didn't advocate anything at all, except the consideration of certain* questions *that obviously make you uncomfortable (a practice for which* Analog *editors have long been notorious). Nor did I say or imply that I* personally *have trouble accepting the way things are developing. I did point out that many other people do, and I am a long, long way from being the first to do so. I'm not clear on whether you're denying that such a widely perceived problem has any reality, or whether you're simply indifferent to what happens to those it affects. Either way, it seems to me that your view of the sociological situation is, at best, "an oversimplified problem model."*

As for your suggestion that I am "too old to adapt and accept a future . . . as it will be and not as you have wished it to be," (a) I've been adapting to change all my life and expect to go on doing it for a long time, but (b) I've also done what I could to steer the future in directions that I'll like instead of ones that I won't. You imply strongly that everybody should accept whatever comes, which I find a logically untenable position. I'd rather encourage everybody to accept and adjust to what they get, but also try to the extent possible to get what they want. You're certainly entitled to withhold your vote on the future if that's what you really want, but I plan to exercise mine!

Your "running leap over a chasm" analogy is exceedingly vivid and picturesque, but not necessarily appropriate. It could be; but a better (though still imperfect) one might well be "as if we're accelerating through a slightly curved tunnel," in which case a bit of brake pressure might be prudent until we get a look at what's at the other end.

Dear Dr. Schmidt,

Your May 1996 editorial prompted me to write the letter I've thought about for about two years now. It's not meant to be mean-spirited or vicious. But there's really no polite way of saying this. When a science fiction editor advocates a moratorium or even a slowdown of invention and innovation, it's time to pack it in. Your pessimistic attitude is not, I believe, conducive to good science fiction.

First of all, you're overlooking an important defense mechanism we all have. Something that allows us, at least psychologically, to adapt to anything. A few years ago I bought my parents a personal computer. They had no idea what to do with it but I'd hardly call the experience stressful. They did what most people do when they encounter something strange,

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they ignored it. Two years later my father keeps track of his bowling league and my mother plays games on it. Its intrusiveness was limited to displacing a potted plant. Most changes in technology are easy to ignore. You don't have to buy a television, AM radios are still available. You don't have to use an ATM; the banks keep the same hours they always have.

You argue that teaching people to adapt faster is too difficult, so we should instead slow progress. Given that most of the technology we have today is fairly new, can we honestly say we've even tried the former approach? I expect the next few generations will prove to be more flexible than you think. Compared with today's classroom, how much emphasis was placed on adaptability when you were growing up?

I could scarcely believe you'd argue that since the Earth, a big wet gassy rock, has survived extended periods of environmental stasis, society can do the same. That monumental extension belongs in the "Common Fallacies" chapter of a logic textbook, not in a journal of science fiction.

Finally, Bell labs' recent shift away from fundamental research has nothing to do with "profound changes in the climate of industrial science," though that makes a good excuse. AT&T is simply feeling the pinch of growing competition, and the shortsighted bureaucrats who run the company, just like those in Washington, have picked a cheap but easy target to save money.

We've already experimented with a "period of contentment." We later gave it the nasty title "The Dark Ages." It lasted a lot longer than ten years.

ART BLAIR

1104 Pin Oak
Allen, TX 75002

I did not "advocate"; I posed a question for consideration. I cited some possible arguments on both sides, but I did not arrive at an answer. The fact that you chose to read "Should we do this?" as "We should do this!" was an error, though unfortunately quite a common type. Apparently you've forgotten, or perhaps never understood, one of the basic principles behind Analog *editorials, so this is a good time to restate it explicitly:* everything *is open to question, so I will pose for consideration all kinds of propositions, including some that I'm not personally enthusiastic about (such as this one).*

My attitude is not pessimistic, nor am I "overlooking" people's ability to adapt—though neither am I convinced of your apparent assumption that it's totally without limits. I agree with you that people's adaptability may increase as a result of the amount of practice they're getting now. But we could certainly use some constructive suggestions on how to make sure that happens—in fact, a major purpose of the editorial was to try to stimulate thought in that direction. Your letter doesn't provide any concrete, constructive suggestions, but maybe a later one will. I did not *argue that we should slow progress* because *teaching people to adapt faster is too hard, but that we might do the former* if *we*

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can't do better at the latter.

Nor did I argue that the Earth's periods of evolutionary stasis prove *that societies can do the same—but neither have you proved that they can't. I merely disproved, by producing an existing counterexample, the Common Fallacy that* all *systems must constantly grow or die.*

Finally, you place yourself in a poor position to sneer at other people's "Common Fallacies" with your "Dark Ages" example. For one thing, the Dark Ages were hardly a deliberate experiment with a "period of contentment" (your phrase, not mine). For another, even if they were, it would be a blatant logical fallacy to assume that the fact that one experiment failed proves nobody should ever try another, hopefully better, on the same subject.

Please note well, before you attack your keyboard again: I did not *just advocate another Dark Age, or even a slowdown of invention and innovation! I hope you'll take the trouble to try to understand what I* did *say, both here and in the editorial. My editorials are intended first and foremost to provoke thought, but I always hope that will include at least as much light as heat!*

Dear Stan:

Great minds run in similar circles! Your editorial in the May issue, "Catch-Up Time," comes strikingly close to the plot of my novel, *Moonrise,* which will be published in November. In the novel the major nations of the world, working through the United Nations, ban nanotechnology research, development, and teaching. Nanotechnology is forbidden, everywhere on Earth—in the name of stability and the fear of nanotech weaponry.

But the people of Moonbase need nanotechnology to process oxygen and hydrogen from the lunar regolith, and for many other purposes.

This illustrates once again the true importance of space flight: we need more than one world, if we expect to grow and thrive, as a species.

BEN BOVA

Dear Dr. Schmidt,

I think this particular editorial ("Catch-Up Time," May 1996) has some challenges that need to be addressed. It starts off innocuously enough discussing the rate of change in our environment (mostly the man-made environment). Then through a few twists and turns, it ends up asking the question: Change people such that they can cope with the rate of change or slow down the rate of change. I have my problems with the underlying assumptions associated with the first prospect.

The first concept is social engineering on a truly massive scale that would do either Mr. Goebbels or Mr. Stalin proud. I think one of the real lessons of the cold war is that one cannot perform such social engineering and have a clue as to the outcome since we don't have the psychological science of Harry Seldon. I am truly startled that you would suggest such a thing. Except to the extent that I realize that, since our own government is conducting social engi-

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neering today that this country would have found shocking as little as thirty years ago, there is a certain numbness where the word coercion is concerned.

The second concept has never read any world history. All societies have advanced and retreated over time. The truly breathtaking speed of advance is only about 50 years old. In European history, we see advances and retreats. Roman technology could not be reproduced for almost 1,000 years after the fall of the Western Roman Empire. The Renaissance was, by comparison, a similar burst of advancement. Arab culture, who in my view was the real successor to Rome, flourished for centuries before being overtaken by the Europeans again. Let us take the advances now, they may not last forever. Oh, and by the way, if we don't do it, the Russians or the Chinese, or the Japanese, or, God forbid, the Europeans will.

I think the truly fundamental, underlying, and unstated assumption behind the editorial is that governments can control either what people do or what they think.

JEFF HARRISON
jharriso@mail.win.org

"Social engineering on a scale that would do either Mr. Goebbels or Mr. Stalin proud?" Oh, come now! There's no reason to assume that I was talking about any more than a reasonably effective public educational system.

Dear Stan,

Just a note to congratulate you on the magazine. I've been a reader since 1960, a subscriber since 1964, and there have been times when I thought the "Golden Age of Campbell" might be gone. But it struck me recently that the quality is as good now as it ever was. With writers like Bud Webster, Doug Larsen, et al., science fiction is in good shape.

Higher Education (Sheffield/Pournelle): great story, in the tradition of Heinlein; coming of age, learning the gritty reality of life, etc. "Big John" (Doug Larsen)—another hit. He had the ability to draw the reader into the characters, and a thoughtful theme. One minor point: I thought the dangerous gas in mines was carbon monoxide, not hydrogen sulfide; you wouldn't need a canary to detect the latter!

Lois McMaster Bujold stories; intrigue, mystery, drama.

Probability Zero stories—innovative concept, very effective.

Keep up the good work.

RON BALDWIN
Guilford, CT

Dear Mr. Schmidt,

I'm writing to respond to G. Harry Stine's article "Will They Let the Spaceships Fly?" I agree with the subtitle and heartily commend Mr. Stine's unflinching snapshot of the current regulatory landscape.

I have worked with various regulators from County Health Officials to State Environmental Regulators to Borough Code Enforcers and the one truth I've found is that public perception and public awareness is of tantamount importance. Space entre-

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preneurs will need to form professional associations to increase public awareness and form a dialogue with regulators both nationally and internationally. This process *will not* happen overnight (although to the general public it will appear to—once 20% consensus is achieved it quickly snowballs to 80%).

I would like to hear more about opportunities for space entrepreneurs outside U.S. borders. This article seemed slanted primarily towards the U.S. I hope Mr. Stine and others will keep us informed on the regulatory realities of space travel both in *Analog* as well as in other publications.

Thanks for an interesting article and keep up the good work.

JOANNE DEITSCH
358 W Mt Vernon Street
Lansdale, PA 19446

Dear Stan:

Your June editorial, "Unlicensed Practice," reminded me of a remark I heard from an MD in a home health organization, where the new buzzword was "clients," not "patients." He said, "Lawyers and prostitutes have clients. I have patients!"

I think that sums up the horrors of modern medicine in a nutshell.

By the way, I loved "The Three Labors of Bubba." Very, very funny!

FRAN VAN CLEAVE
Phoenix, AZ ■

We welcome your letters, which should be sent to *Analog*, 1270 Avenue of the Americas, New York, NY 10020. (CompuServe: 71154,662. Internet: 71154.662@compuserve.com.) Space and time make it impossible to print or answer all letters, but please include your mailing address even if you use e-mail. If you don't want your address printed, put it only in the heading of your letter; if you do want it printed, please put your address under your signature. We reserve the right to shorten and copy-edit letters. The e-mail address is for editorial correspondence *only*—please direct all subscription inquiries to: 1-800-333-4561 or write: P. O. Box 5133, Harlan, IA 51593-5133.

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UPCOMING EVENTS Anthony Lewis

22–24 November
PHILCON '96 (Philadelphia area SF conference) at The Adams Mark Hotel, Philadelphia, PA. Principal Speaker: Frederik Pohl; Guest Artist: Tom Kidd. Registration: $35 until 15 October, $40 thereafter. Info: Philcon, Box 8303, Philadephia, PA 19101. URL: http://www.netaxs.com/~philcon. E-mail: philcon@netaxs.com. (215) 957-4004.

29 November–1 December
LOSCON 23 (Los Angeles area SF conference) at Airport Hilton, Burbank, CA. Guest of Honor—Harry Turtledove; Artist Guest of Honor—Vincent Di Fate; Fan Guest of Honor—Merlin R. (Bob) Null. Registration: $30 until 15 November, $35 at the door. Info: LosCon, c/o LASFS, 11513 Burbank Blvd, North Hollywood, CA 91601. (818) 760-9234. E-mail: RBourget@aol.com OR ag225@lafn.org

4–8 December
POLISH NATIONAL CON at Gdansk, Poland. Info: GKF, Box 76, Gdansk 80-325, Poland. +48 58 531-073.

24–25 December
POLECON MCMXCVI (High Arctic SF conference) at the Workshop, North Pole. Guest of Honor—Dr. Thaddeus Bodog Sivana; Guest Artist—Aurora Sebernoye-Siyaniye; Fan Guest of Honor—Baba Yaga. Registration free, but limited to good girls and boys. E-mail: sclaus@northpole.gov URL: http://www.northpole.gov/~polecon96/

28 August–1 September 1997
LONESTARCON 2 (55th World Science Fiction Convention) at San Antonio Convention Center, San Antonio, TX. Guests of Honor—Algis Budrys and Michael Moorcock; Artist Guest of Honor—Don Maitz; Fan Guest of Honor—Roy Tackett; TM—Neal Barrett, Jr. Registration until 7 July 1996: $95;supporting $25; children 3-12 $40, children 0-3 FREE (age as of 28 August 1997). This is the SF universe's annual get-together. Professionals and readers from all over the world will be in attendance. Talks, panels, films, fancy dress competition—the works. Info: LoneStarCon 2, Box 27277, Austin, TX 78755-2277. (512) 435-7446 (voice), (512) 435-7747 (fax), lsc2@io.com

Convention runners: If your convention has a telephone, FAX, E-mail, or Web page URL, please let us know so that we can publish this information.

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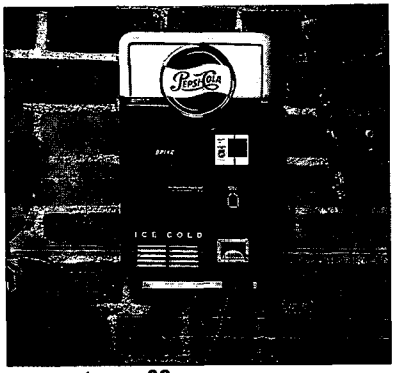

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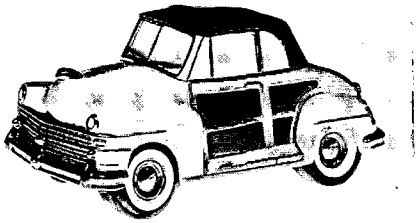

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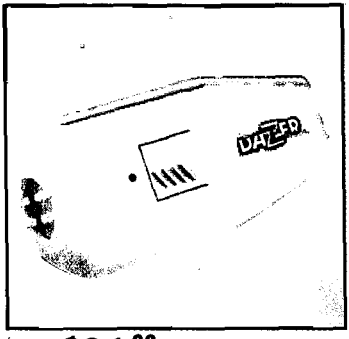

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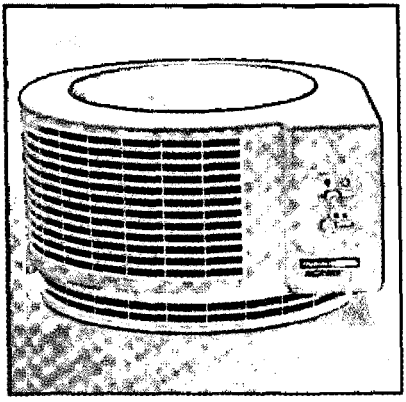

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